# intercom

Journal of the Air Force C4 community ★ November 2003


## EXPEDITIONARY COMM

Deploying across the globe to support the warfighter

- Communication Integration for OIF
- "Our summer in Baghdad"
- 1st Combat Comm supports Liberia
- Comm guides Tallil's aircraft
- CENTAF's lessons learned

NOVEMBER 2003 ★ VOLUME 44, NUMBER 11

# intercom








**This month's cover, themed "Expeditionary Comm" is designed by Master Sgt. Karen Petitt, Managing Editor.**







**THE JOURNAL OF THE AIR FORCE C4 COMMUNITY**

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Air Force Chief of Staff

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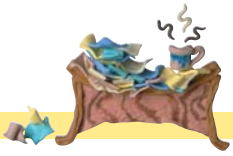
# From the editorial desk



## THE POWER OF ONE: You make a difference

**By Master Sgt. Karen Petitt**
*Managing Editor*

You are on the front line. Hot. Parched. Dusty. Sandy. Just glad to have one "Snapple" drink as your treat. Then you go back to work to provide critical comm for our pilots and commanders. You create a radar tower out of an old aircraft bombed during the war. You scrounge materials and tools because the Air Force keeps sending you to set up more bases than you have equipment for. You're in Iraq, Afghanistan, Liberia, the Philippines and 100 other places known or forgotten, in miserable conditions most of the time. Building up. Tearing down. Moving on. Fixing problems. Creating new, better solutions. And through it all you leave things, and people, better than when you found them. You build schools, give medical supplies, toys, clothes and money to children in the war torn countries where you deploy. You sing, read, hug and comfort. You laugh. And cry. In this big, mass, expeditionary force that sweeps across nations, you are making a difference. You are not counting the days, but are making the days count. You are finding out what it means to be there for each other. No matter if accolades or bronze stars come your way, you are satisfied with what you've given. You exemplify the quote: "To the world you might be one person, but to one person you might be the world." To all the communicators on the front lines and to those who support them from home stations, we salute you.

This has been an especially rewarding issue to present to you, and we feel it captures just a snap shot of not only the amazing things you do, but the amazing people you are ... and the difference you make.

# Letters to the editor

## Great job

Finally someone has discovered the power of the image. This was an insightful and creative use of images in presenting the communications mission (in the September issue). The stories are good, but the supporting images spark and energize this issue. I have been reading the *intercom* for quite a few years, and it has always been informative. It seems to be taking on a more appealing format in design and layout. Your use of full page images that follow the creative rules of layout and design to convey a message is starting to work. I understand the political gauntlet you have to traverse when you think out of the box. Great effort and great issue.

**—Herbert D. McClain**
*Multimedia Manager, Randolph AFB, Texas*

## ROBE capabilities

I was rather amazed about a recent article in the August 2003 magazine, page 5, "Leadership changes." The article states that the Roll-on Beyond Line-of-Sight Enhancement, or ROBE, was fully demonstrated in Operation Iraqi Freedom. I know for a fact this is not true. ROBE was not part of Operation Iraqi Freedom although a push was made to try and get it there. I do have to say that the only modified tanker (with wiring), was deployed to the theater during the height of the conflict, but ROBE's communication gear was not out there.

**—Rance Scarborough**
*Albuquerque, N.M.*

*True, ROBE was not used in OIF though the concept, "Beyond-Line-of-Sight" relay/gateway was used no doubt successfully in various forms.*

JAG in a Box

**Fritz Mihelcic**
*AFCA Deputy Chief Counsel*

## Musical copyrights

**Q** **Can I use copyrighted music under the "Fair Use" exception when a customer wants to have a video produced?**

**A** Fair use is an exception to the copyright law, but it is difficult to prove and must be certified by your local JA. The only way to ensure legal use is to get the copyright owner's permission to use the music before you put it into your multimedia presentation. Multimedia centers have purchased music libraries that are licensed and legal to use. The best practice is to use what the centers already have and avoid potential violations of the law. A violation of copyright law could subject you to civil damages up to $30,000. AFI 33-117, Managing Multimedia, is very clear on this.

If a customer insists on using unlicensed copyrighted music, there could be additional statutory damages up to $150,000 because it would be a wilfull violation of the law. In addition to these civil penalties, you can also be assessed criminal fines up to $250,000 and jail time up to six years.

You need to contact your local JA or give us a call at DSN 779-6060 to avoid these problems. Remember, when it comes to potentially illegal activity, the customer may not always be right.

**Send in your question to:**
**AFCA-JA@scott.af.mil**
**or call DSN: 779-6060**

# Winning teams solve the Decider's


By Lt. Gen. William T. Hobbins
*DCS, Warfighting Integration*

**BOTTOM LINE**

**DCS for Warfighting Integration discusses the importance of arming senior leaders with the right information so they can make the right decision – fast.**

PENTAGON — It's a unique pleasure to join the C4 team as the new DCS for Warfighting Integration. I come to this position with the optimism of a new defensive back, ready for the upcoming season, pleased to meet the new team, excited to learn the new position, and win the next game.

As I see the talented group assembled across the C4ISR community—both our military, government civilian and industry partners—I'm confident that we have fielded a winning team. The winning team Gen. Dwight D. Eisenhower had in mind when he said, "the teams and staff through which the modern commander absorbs information and exercises high authority must be a beautifully interlocked, smooth-working mechanism. Ideally, the whole should be practically a single mind." Even today, it frames our key issues and tomorrow's challenges.

## Decider's Dilemma

Let me lay down a challenge for each of us to keep in mind during the days and months ahead: **Getting timely, decision quality information, at the right time to the Joint Force Commander**. This challenge is as crucial to warfighting integration as it was to my most recent needs as a Component Commander.

In our Air Operations Centers today we have finders, deciders, and shooters … all focused on compressing the kill chain. **We need to solve what I will call the Decider's Dilemma**. The information the deciders have is limited by what the finders have and what others have not told them. We have problems with the transfer of sensitive information from some classified levels to the operational floor of our AOCs. We haven't settled on the right kind of guards to allow that transfer to happen in a routine and efficient manner. The information the deciders have can come to them in many forms, such as e-mail or information workstation chat boxes.

Unfortunately, the quality and completeness of the info is now largely dependent on their situational understanding to ask the right questions upfront in the process.

The finders, deciders, and shooters can't rely on such a sequential process, but require parallel processes. **Time-sensitive targets must be shared, distributed, and integrated horizontally to members of the joint and, in most cases, coalition forces simultaneously**. For example, everyone needs to tell the Combined Forces Air Component Commander how many minutes it will take to execute a time-sensitive target.

Time-sensitive targeting demands improvements in our capacity for gathering and integrating information. Network Centric Collaborative Targeting is a CSAF-sponsored Advanced Concept Technology Demonstration effort to horizontally integrate [intel] sensors to provide actionable information on targets. NCCT will provide the network to connect multiple sensors, and the common software application that provides the machine-to-machine rules for operating as a collaborative team of sensors. NCCT will allow a considerable improvement in the speed in identifying moving ground targets and obtaining their geolocation information. Our objective is to exploit tools such as NCCT to provide decision quality information to the

# Dilemma

decider, but we remain limited by our situational understanding to ask the right questions.

Sometimes, the vast amount of information we gather increases our situational awareness, but limits our situational understanding.

## The Warrior

In Kosovo, reaction times for time-critical targets were at best between 30 minutes and several hours. In Iraq, reaction time compressed to double-digits. For the next war, the Air Force must be working toward capabilities in rapidly processing time-critical information supported by an architecture that is street smart to the individual needs of the warrior and will allow single-digit reaction times.

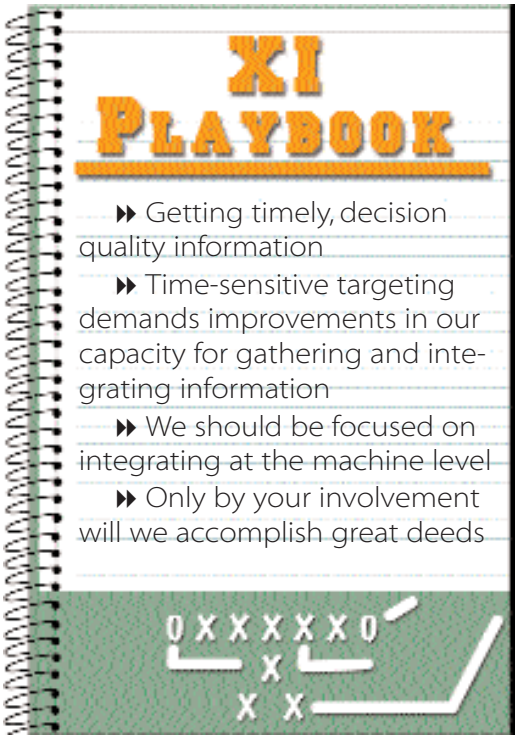
Just as the Internet's architecture allows user characteristics and information to be collected, filtered, and distributed to interested buyers, we need an intelligent architecture that collects and learns the decider's data requirements and gets smarter with every query until it can anticipate, filter, and push the desired information to the appropriate user. **But the commander doesn't want to be spammed, he wants to be astonished and impressed**.

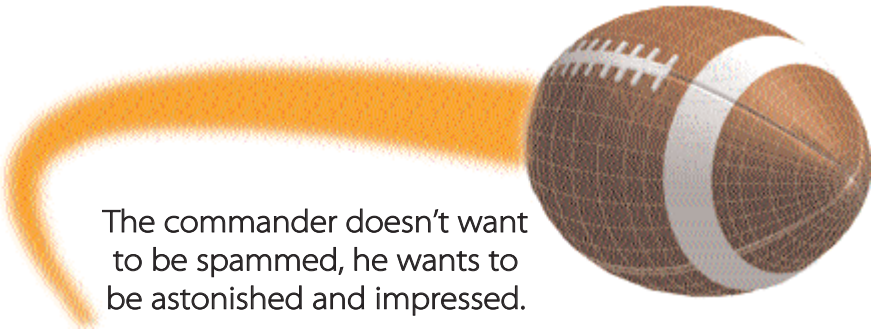
The joint warfighting decider wants to exploit the kill chain to find, decide, and shoot faster than any adversary. That means as the Air Force performs "find-decide-shoot-assess" activities in the kill chain, the information must flow based on a single, overarching architecture that anticipates what the subscriber needs and constantly looks for it, makes adjustments, learns, and gets smarter and more efficient every day, bridging the gap from situational awareness to situational understanding.

It is this desire to bridge that gap that has moved Distributed Mission Operations to the top of the Chief's [Gen. John Jumper] priorities. DMO is designed to allow a combatant commander the opportunity to link geographically separated units in ways that we can't do today. It will allow larger training exercises or mission rehearsals in live, virtual, and constructive environments. We can link live jets flying on the Red Flag range with a Blue Flag exercise in Florida and an AWACS crew training in their simulator in Oklahoma City. It permits us to train harder, smarter, and with less stress to people and equipment. This is truly a transformational element for our Air Force. Our Chief is four square behind it.

## The Global Net

The Air Force and the other Services orchestrate a wide range of capabilities and systems to achieve decision superiority for the decider, and they do that in a complex environment made up of air, space, and ground systems. Key to the Air Force concept is the capability to rapidly bring globally-based forces to a specific point in time and space to create the Joint Force Commander's desired effects. More and more, this involves extending information- and knowledge-sharing with not only the other services of the joint force, but with other federal agencies and U.S. coalition partners. This concept means that the Air Force must have a globally based command and control system that is "born joint," and provides deciders the situational understanding to effectively apply our ▸▸





The commander doesn't want to be spammed, he wants to be astonished and impressed.

wide array of warfighting capabilities in an ever-increasing Joint Battlespace.

This Joint Battlespace—the air and space and terrestrial environment—is more than platforms. The critical element that permits the systems to operate together is what we call the Global Net. The Global Net is the communications network—air, space, and ground—that must allow a free flow of information so that it's rapidly accessible and presented to warfighters at the right time and right place to create the commander's desired effects. **The issue is not moving data faster so much as it is moving the right data to the right people**. This Global Net ties together information generated from a complex array of sensors in air and space, processes and delivers information, and presents the information to the warfighter.

Communicating freely sounds easy, but right now the information Global Net is largely point-to-point. It works on the same principle as sending e-mail to another individual, or calling them on the phone. But that's not the Air Force vision. Air and space forces need to communicate more like a "chat room," or a teleconferencing call so all players have the information simultaneously. We need an environment in which machines communicate directly with each other to exchange data, and when new data of demonstrated interest comes in, it is pushed forward, based on known subscriber interests, freeing up the commander to focus on understanding the information and making decisions.

In the Chief's own words: "We should be focused on integrating at the machine level those machines that we already have in the near term and then be able to take great advantage of their ability to speak to one another. We have to resolve our problems of target acquisition and target location … and shift seamlessly back and forth between how we traditionally use intelligence assets to the time-critical targeting."

So, what the Air Force really wants is an Internet that allows information to flow among air, space, and ground elements. **Information flow needs to be honed to decision quality for the command chain**. The separation of control of information from command of forces allows the commander to focus on the art of command, leaving the science of controlling and manipulating information to the supporting staffs. Ultimately, this Internet requirement will entail mobile internet protocols, publish-subscribe, and access by all to all information. This means there will be some collaboration across industry at a strategic level to work the machine-to-machine interoperability of C4ISR systems, and designing systems for interoperability.

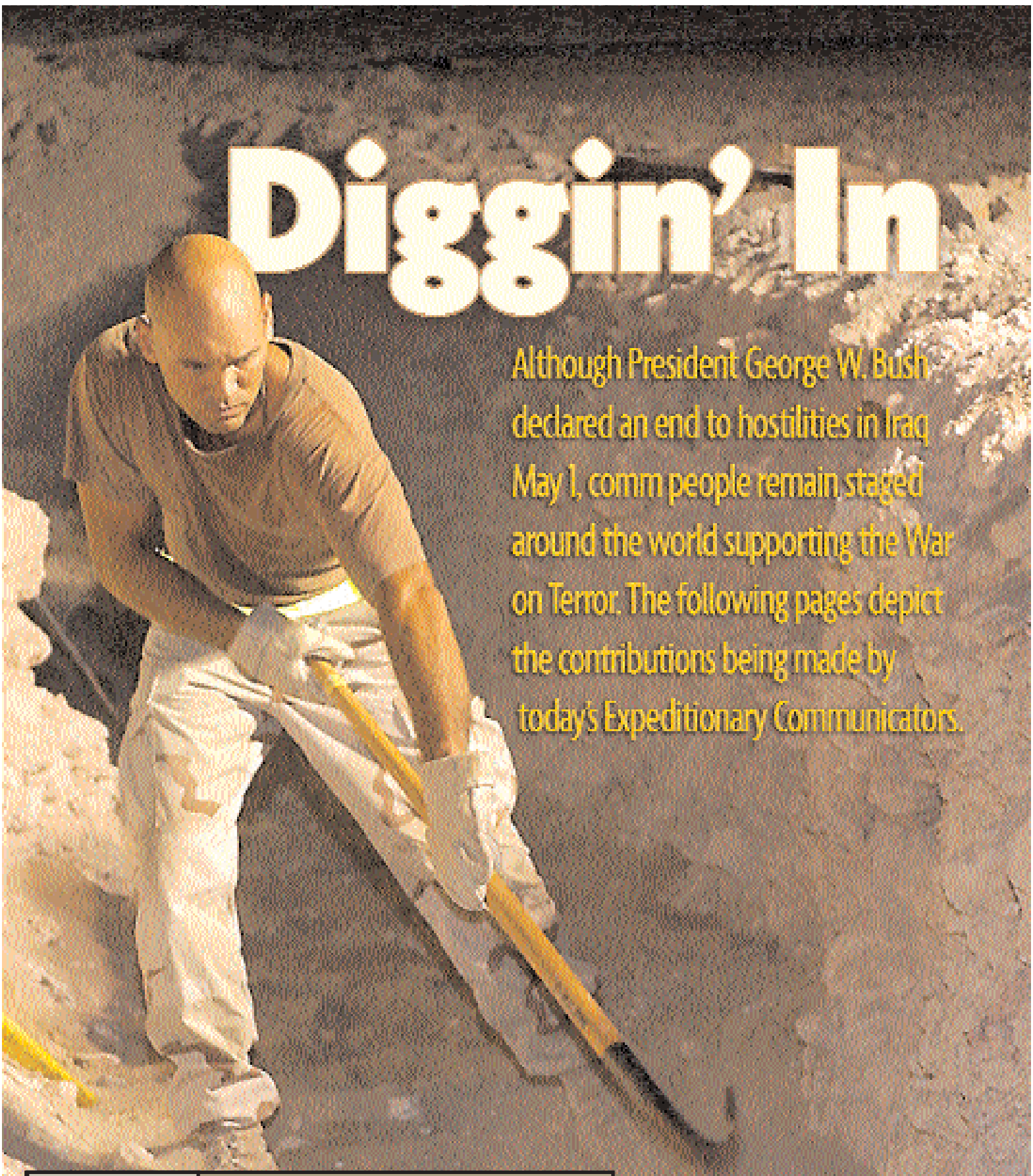
Given these challenges, I am looking forward to the new season optimistically with a confidence in our C4ISR team to meet the future. **I encourage us all to keep our eye on the ball —the decider**. The information explosion we are confronting is unprecedented. We need to be able to process today's huge quantities of data and extract decision-quality information for our commanders. The joint force commander must possess the situational understanding to make a rapid decision when a new target emerges and act decisively to ensure the target is destroyed and effects achieved.

We are not in the business of building gadgets. We are working C4 and "IT" to ensure victory in battle. Give us your ideas of how we can meet these challenges. **By all means do not sit on the sidelines and think that others are responsible for this warfighting integration. Your ideas can and will make a difference**. To paraphrase Colin Powell: "Endeavors succeed or fail because of the people involved. Only by your involvement will we accomplish great deeds."


Graphic illustrations by Tech.Sgt. Jim Verchio / Intercom Editor

# Diggin' In

Although President George W. Bush declared an end to hostilities in Iraq May 1, comm people remain staged around the world supporting the War on Terror. The following pages depict the contributions being made by today's Expeditionary Communicators.



**Expeditionary Communications**

## What's the scoop?

AL UDEID AIR BASE, Qatar — Staff Sgt. Jason Renner clears a utility trench in the communications compound here. Renner is assigned to the base's 379th Engineering and Installation Squadron.

Staff Sgt. Dawn Finniss / JCCC

# AROUND *the* WORLD

*Editor's note: The* ***Intercom*** *staff received so many great submissions for the "Expeditionary Comm" issue, that we're just not able to print them all. On the following pages, you'll find excerpts from the stories that were submitted. Some are quotes, and some are bits and pieces recognizing units for their contributions toward the War on Terror.*

**Joint Communications:** "I touched down in Kandahar, Afghanistan in February, to be an executive officer. By default, my other duty was to handle all Air Force communications issues. My 'life line' for communications was the Army's 82nd Airborne."

*Capt. Eli Martinez*
*Tinker AFB, Okla.*

**Warriors first:** "If flexibility is the key to air power, then the resourcefulness of combat communications teams is the attribute that delivers that flexibility. Combat communicators recognize that while individuals are exceptional, teams of exceptional individuals are unstoppable."

*Capt. David Neuman*
*Tinker AFB, Okla.*

**Anytime, anywhere:** "Supporting the requirements of diverse U.S. and coalition forces [at Baghdad International Airport], such as the 728th Air Control Squadron, 379th Air Evacuation Squadron, 301st Expeditionary Rescue Squadron, U.S. Navy and Australian forces, is what expeditionary communications is all about."

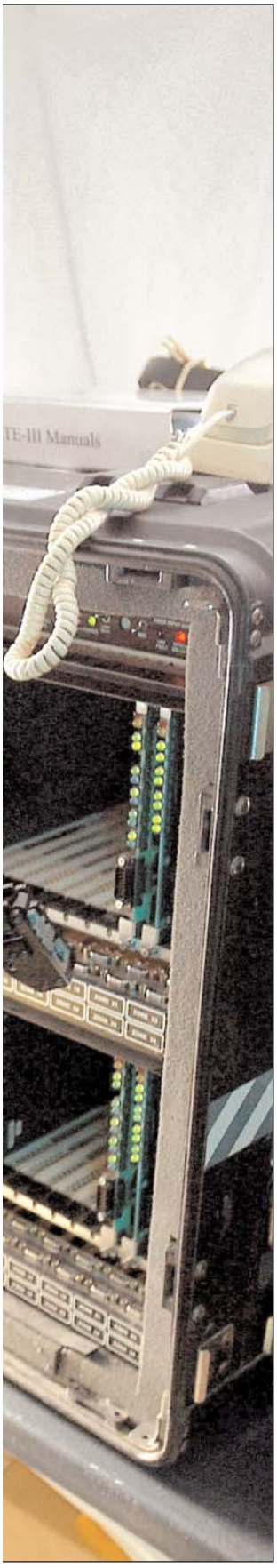
*Lt. Col. John Patricolo*
*447th ECS commander*

**Smaller footprint:** The Air Force tactical communications community is moving to modular, mission-centric UTCs that provide a common set of services for varying mission sizes and away from UTCs built around equipment.

*Capt. Sean Ellars*
*1st CCS Support to JTF Liberia liaison officer*

Senior Airman Paul Cassidy, 100th Communications Squadron, RAF Mildenhall, United Kingdom, connects the Base Access Module. Cassidy is at RAF Feltwell, UK, for Theater Deployable Communication training where they set up, operate, troubleshoot and tear down deployable communications equipment during a two-week period.

**Airman 1st Class Franklin Perkins /** 100th CCS




# Communication Integration

**By Maj. Kevin Payne**
*609th Air Communications Squadron*

SHAW AIR FORCE BASE, S.C. — The Air Force's success at high-tech warfare is attributed to communicators who effectively integrate new technology with existing combat operations and systems.

Air Force expeditionary comm served as the backbone for a joint network, which improved coordination between joint and coalition forces. To date, Operation Iraqi Freedom deployed the greatest communications capability in combat serving as a benchmark for delivering information superiority and joint interoperability.

War planners from the U.S. Central Command and its warfighting components overcame resource limitations in bandwidth and equipment to build a comm architecture that met the warfighter's high demand for real-time information.

Shaw's 609th Air Communications Squadron led the Air Force's comm planning. The unit is also known as U.S. Central Command Air Forces. Directly supporting USCENTAF/A6 in war planning and preparations at the Prince Sultan Air Base Combined Air Operations Center was USCENTAF-PSAB/J6, commanded by Col. Vincent Valdespino.

To achieve the feats that communications technology provided during OIF a lot of bandwidth was needed. Air Force communications provided a total data rate of more than 800 megabits per second (Mbps) which was 20 times more bandwidth than used in Desert Storm. Together, USCENTCOM and the other components used more than 2,266 Mbps for 250,000 troops. In comparison, Operation Desert Storm had a total data rate of 47 Mbps for 500,000 troops.

The Air Force deployed more than 1,700 communicators and 4,000 tons of equipment into the theater of operations. Personnel and equipment were pre-staged within the theater to quickly leap forward into Iraq when needed. During the height of the campaign, communicators responded quickly to support special ops forces and close air support units at seized Iraqi airfields. USCENTAF/A6 mobilized quick response, five-man teams from the 3rd and 5th Combat Communications Groups to the seized airfields. These teams were known as "8-8-8" comm light packages because the entire package provided eight NIPRNET, eight SIPRNET, and eight DSN phone lines which amazingly used only one C-130 for airlift.

The lightning fast thrust to Baghdad in just 21 days required precision timing between joint and coalition forces. The synergy employed with air, land, and sea operations was exceptional and would not have been possible without well-planned communications interoperability. USAF comm warfighters played a critical role in executing Operation Iraqi Freedom and significantly increased our warfighting capability for future operations.

## Comm successes

- **Intelligence** – War planners established connectivity for multiple ISR platforms flying simultaneously over the Iraqi region.
- **Command and Control** – Several key C2 systems, such as the Web-based Theater Battle Management Core System, were installed prior to OIF allowing for improved information flow between the CAOC and combat forces.
- **Interoperability** — War planners worked nine months to build the largest integrated network between joint and coalition forces.
- **Portability** – The CFACC assigned liaison teams to reside at host nation ops centers during OIF. Air Force communicators deployed with a transit case "Fly Away Kit" as part of the team, which provided secure voice and data connectivity to the CAOC via satellite phone. The remote connection gave liaison teams the ability to provide host nations with up-to-date progress on the campaign, situational awareness of the battlefield, and SCUD missile threat warnings.

## AROUND *the* WORLD

**No prying eyes**: For Operation Iraqi Freedom, United States Central Command installed Intrusion Detection Systems. United States Central Command Air Forces not only used passive network forensics detection tools, they also implemented active components – shunning network intruders in real time.

*1st Lt. Jay Harris*
*USCENTAF NOSC*

**Humans rule**: "Our commitment to support one another resulted in some significant technical solutions, all of which helped guarantee uninterrupted command and control for the duration of combat operations and ensured the success of each of our assigned missions. In my outfit it, was the human element of interoperability that proved to be the most critical component of expeditionary communications."

*Capt. Stephen Goodman*
*Hurlburt Field, Fla.*

**It's the small things**: "They had just set up a shelter at the BX and our team went over and bought some Snapple Ice Tea. We were limited to one each. We brought them back, and we all sat in the Humvees and drank them. It felt like we were in heaven."

*Retired Master Sgt. Billy Keith*
*Robins AFB, Ga.*

**Early recognition**: As war plans were being implemented, one thing became increasingly evident — existing communications were inadequate. Infrastructure, voice, data, bandwidth, safety and security stood out as obstacles to effectively fight upcoming battles.

*Chief Master Sgt. Dennis Mayo*
*Air Force Materiel Command*

**Time's changing**: The transition to becoming an expeditionary air and space force, coupled with the War on Terrorism, has presented significant challenges to Air Force Communicators.

*2nd Lt. Frank Theising*
*Langley AFB, Va.*

Airman 1st Class Mylan Shaunfield, 100th Communications Squadron, RAF Mildenhall United Kingdom, troubleshoots a network proxy server at RAF Feltwell in the UK. Opposite page: Airmen from the 51st Combat Communications Squadron lift a boom for assembly on a TPN-19.

Courtesy photos

## Be prepared

# 51st CCS: Ready to support real world contingencies

**By Maj. Jeff Holifield**
*51st Combat Communications Squadron commander*

ROBINS AIR FORCE BASE, Ga. — When the 51st Combat Communications Squadron deployed from here in January, I thought I knew what we needed to do. Even though I was a relatively new squadron commander, I had been through several exercises and deployed in the past to a bare base. I was trained and ready to go. We were prepared to provide telephone, unclassified and classified network services, and radio support. People from one of our sister squadrons, the 52nd CBCS, deployed to provide airfield services. These services were straightforward and what we trained for. What I was not ready for once we arrived was the myriad of additional systems our operational customers not only expected us to provide, but sometimes demanded help in running.

*Point of View*

The 51st was one of the first comm squadrons to deploy in support of what would become Operation Iraqi Freedom. We had our hands full with two theater deployable communications systems, and were tasked to provide communications support to a very large base. The deployed comm squadron we formed, the 410th Expeditionary Communications Squadron, was composed of people from 10 different active duty and Guard squadrons around the world.

Soon after we arrived, I would walk around our network control center and yell, "Mike, can I call my Momma yet?" as our troops worked to get telephone services up and running. Master Sgt. Mike Kochera hung his head and probably asked himself how many times I was going to ask him that question. Unclassified and classified network services were already available, so he replied back with a smile, "you can send her an e-mail sir." We were having a delay in telephone services because the compression cards we were using were new to most everyone in the theater. But within a couple of days we were up and running. With a lot of help from an engineering and installation team from the New York Air National Guard and comm support teams from Alabama and Colorado, we started to extend services to our customers.

Once we had basic services out we thought we were golden. But then, our customers started asking for systems ranging from command and control computers to information links for Patriot missile batteries. We hadn't even heard of some of the systems, so we learned. We assigned people like Tech. Sgts. George Broussard and Bert Kelly to different systems and asked them to learn everything they could about them. Staff Sgt. Shakena Gibbs figured out how to set up the systems on our users' computer systems and how to get the proper firewall ports opened and user accounts set up. Because we had coalition partners to support, 1st Lt. Mick McDaniel figured out how to provide classified e-mail access to our allies.

We worked our way through the maze of systems and managed to get our customers what they needed. While our tasking says we provide telephone and network services, our real world customers expect us to know, understand and provide much more. One of the lessons I learned in OIF is that the basics are just that—a basic level of service we provide. We need to become more involved in the systems our customers use and depend on, because like it or not, we are the "experts" as far as they are concerned. We will incorporate user systems in our training program to ensure on our next deployment, we are ready to provide our customers the systems they need to fly, fight, and win.

## AROUND *the* WORLD

**Transformation:** In only three short months, combat communicators transformed Kirkuk [Formerly Saddam International Airport] from the communications stone age to space age operations.

*Maj. Scott Moser*
*506th Expeditionary Communications Squadron*

**Setting the bar:** Among many firsts, combat communicators used Theater Deployable Communications capability initial infrastructure to deliver the combat air picture from air control squadrons to the air operations center. This allowed Airborne Warning and Control Systems, or AWACS, to stand down for the first time in 13 years.

*Capt. David Neuman*
*Tinker AFB, Okla.*

**Eye on the ball:** Since May 1, the 506th Expeditionary Combat Communications Squadron has been responsible for approximately 222,000 telephone and 51,000 morale calls that have been made from Kirkuk; setting up 1,750 e-mail accounts; receiving 13,100 pieces of mail; installing 280 phone lines; issuing more than 350 Land Mobile Radios; and installing miles and miles of cable.

*Capt. Jill Whitesell*
*506th Air Expeditionary Group Public Affairs*

**Talk about broadband:** Through the use of satellites, fiber-optic cables and several other new technologies, Air Combat Command's Technical Control Facility is able to support operations around the world from the continental U.S., dramatically shrinking the number of people needed in theater of operations.

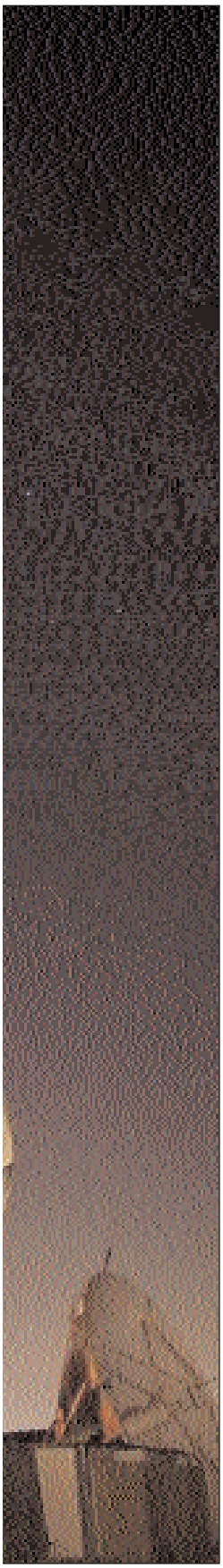
*2nd Lt. Frank Theising*
*Langley AFB, Va.*

**End game:** Providing confidentiality, integrity and availability of information is the goal of Computer Network Defense and when bombs are put on target, we know that vision of a layered network defense, AOR wide, is a success.

*1st Lt. Jay Harris*
*USCENTAF NOSC*

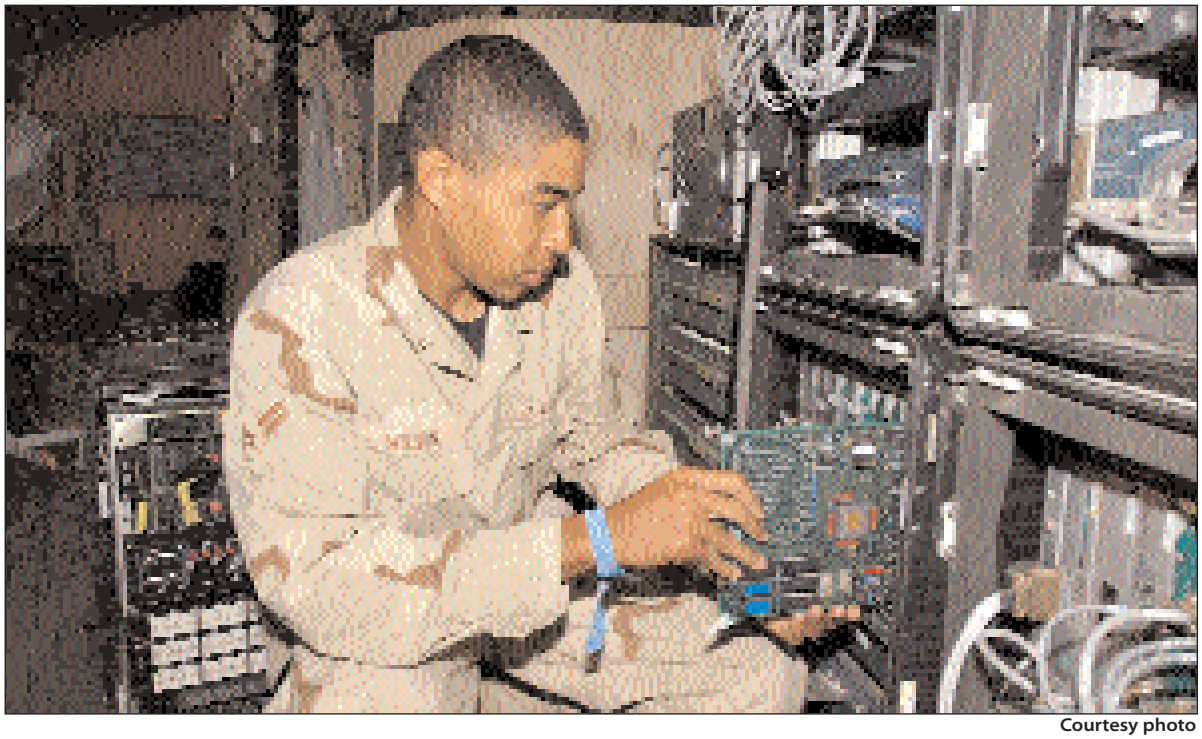
Satellite operations provided critical communications links during Operation Iraqi Freedom. This satellite, deployed at an undisclosed location, is part of the communications package being used by U.S. Space Command.

Courtesy photo



Staff Sgt. Casey Helmer removes a wave guide as part of the Digital European Backbone's decommissioning at RAF Mildenhall, U.K. The backbone consisted of 17 sites in England and others throughout Europe forming a network of radio sites. A new system, using government-owned and leased fiber-optic cabling technology, will allow voice, video and data transfer at higher rates.

**Airman 1st Class Franklin Perkins /** 100th CCS



Courtesy photo

**The Air Force uses the SIPRNET as a weapon system. With more than 1,000 accounts at Peter J. Ganci Air Base, Bishkek-Manas, Kyrgyzstan, a team of five from the Combat Information Systems Flight works around the clock fine-tuning the network.**

## AROUND *the* WORLD

**Amazing:** "It was a tremendous feat of cooperation and coordination to rapidly establish combat ready communications."

*Capt. Stephen Goodman*
*Hurlburt Field, Fla.*

**Closing time:** "The base [Prince Sultan Air Base, Saudi Arabia] has gone from supporting tens of thousands of people with a comm squadron of 130-plus people to a tactical unit of five people. The hustle and bustle that used to be PSAB now mirrors a ghost town that you would see in an old western movie."

*Retired Master Sgt. Billy Keith*
*Robins AFB, Ga.*

**Stealthy comm:** The concept of shrinking the forward footprint will continue to gain importance as communications systems become faster, more advanced and more reliable.

*2nd Lt. Frank Theising*
*Langley AFB, Va.*

**Integration:** Time sensitive targeting demands improvements in our capacity for gathering and integrating information.

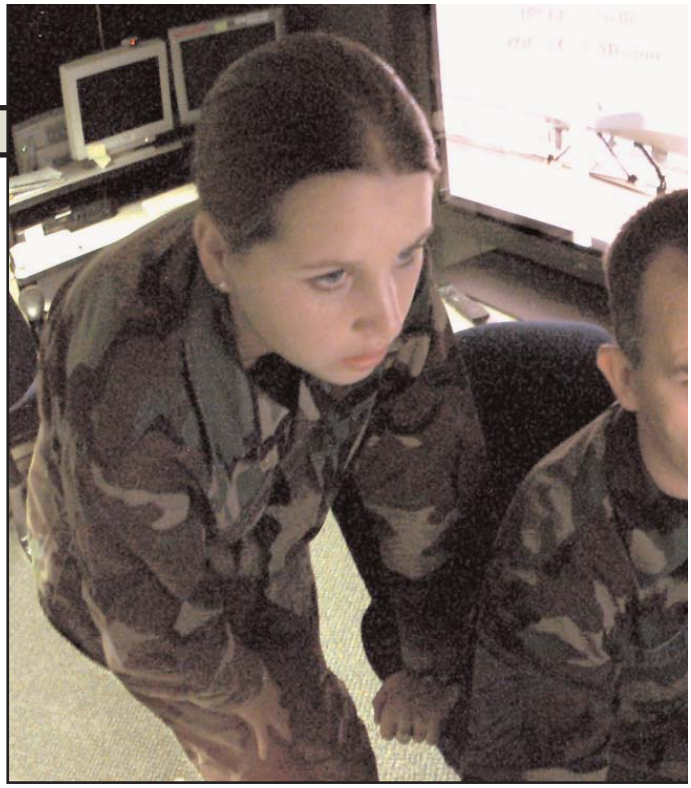
*Lt. Gen. William T. Hobbins*
*DCS for Warfighting Integration*

**Special delivery:** Delivering secure and non-secure network services, voice, ATCALS, Land Mobile Radio and satellite communications to the warfighter is what the 3rd Herd [the 3rd Combat Communications Group from Tinker AFB, Okla.] trains for every day. However, to do it in Baghdad in support of Operation Iraqi Freedom is a unique opportunity.

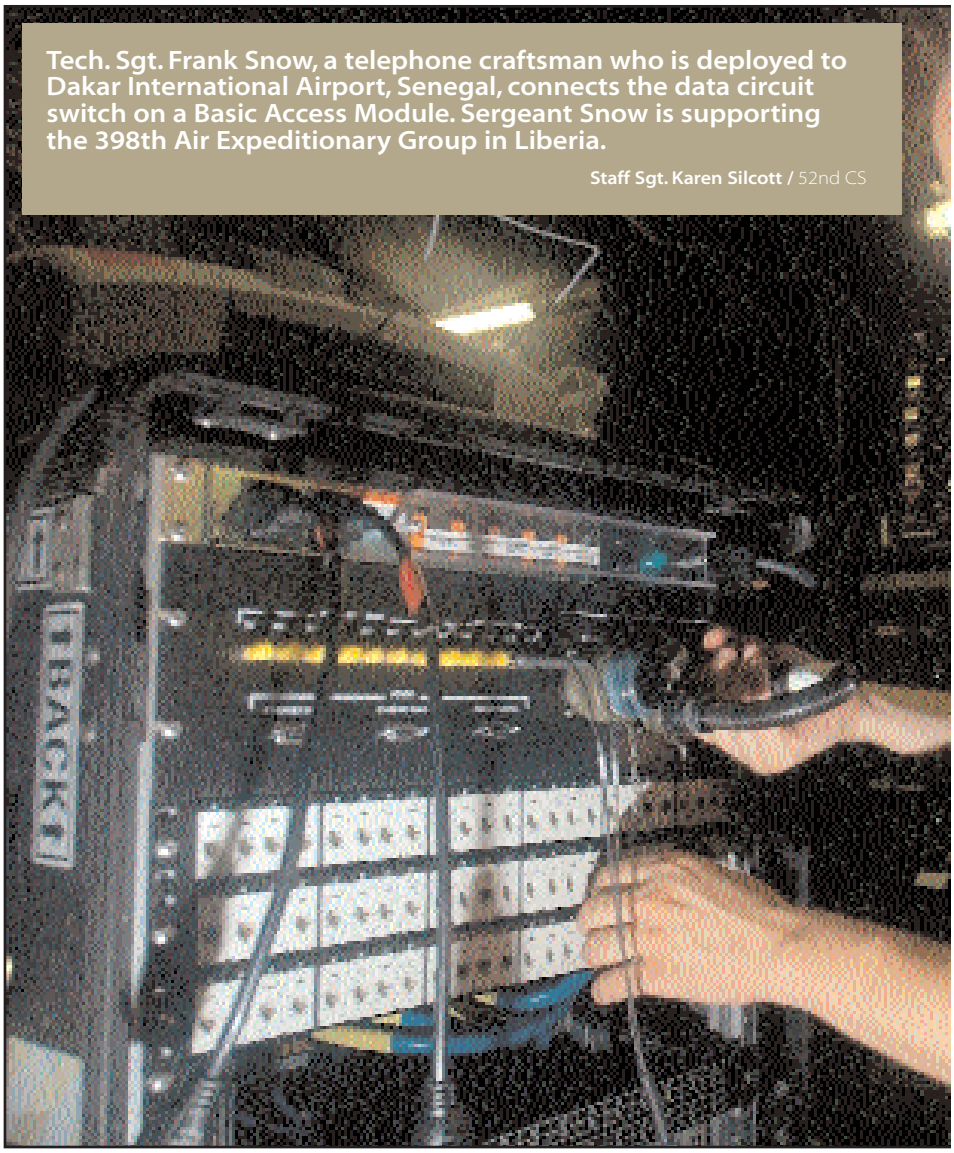
*Lt. Col. John Patricolo*
*447th ECS commander*

**Measuring up:** The 400-foot rule, which is spelled out in the Air Force Concept of Operations for Combat Communications, states Air Force units are expected to predict their communication requirements and bring the appropriate amount of end items. Expectation and reality didn't quite meet in Kandahar.

*Capt. Eli Martinez*
*Tinker AFB, Okla.*

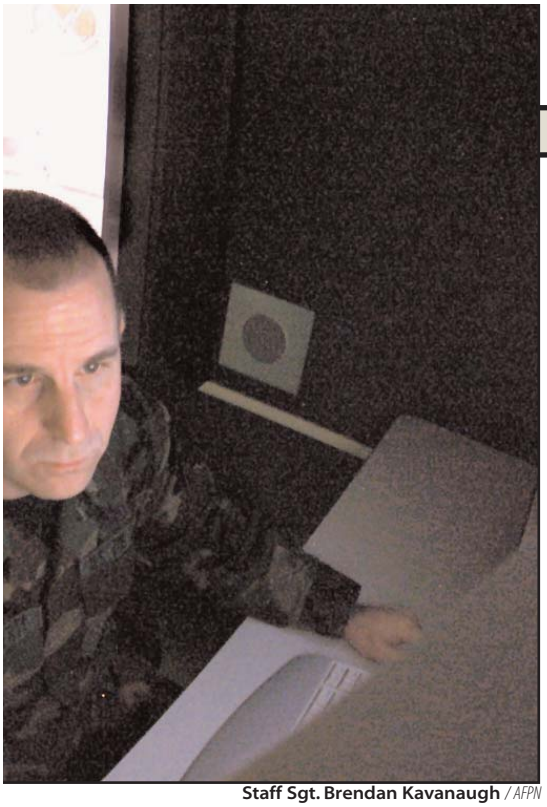


Airman 1st Class Jamie O'Connell, an imagery analyst in the 30th Intelligence Squadron at Langley AFB Va., consults with Master Sgt. William Dougherty, an imagery mission supervisor to interpret data from a Predator image feed. They are part of a team that provides intelligence, surveillance and reconnaissance feedback to deployed warfighting commanders.



Tech. Sgt. Frank Snow, a telephone craftsman who is deployed to Dakar International Airport, Senegal, connects the data circuit switch on a Basic Access Module. Sergeant Snow is supporting the 398th Air Expeditionary Group in Liberia.

**Staff Sgt. Karen Silcott** / 52nd CS



**Staff Sgt. Brendan Kavanaugh** / *AFPN*

**Airman Christopher Walkenhorst** / 48th CS

**Airman 1st Class Victor Cannon, 48th Communications Squadron, RAF Lakenheath, United Kingdom, de-solders electronic components to salvage parts for other equipment. The 48th CS provides command, control, communications, computer and information systems support both in garrison and while deployed.**

## AROUND *the* WORLD

**Roughin' it**: The combat communicators located secure facilities for sleep and work and even created their own latrines. People operated in complete darkness at night because Kirkuk was blacked out to allow covert airlift operations.

*Maj. Scott Moser*
*506th Expeditionary Communications Squadron*

**Training is key**: We took Sembach Network Control Center airmen, who normally aren't exposed to this sort of [network] training, and taught them basic skill sets required to deploy down range and set up a network from scratch.

*Maj. Pete Kim*
*Commander, 886th Communications Squadron*

**Superiority**: Without comm, fighting a war and proving mission successes simply would not be possible. Communications allows us, as airmen, to maintain air and space superiority while protecting, organizing and commanding the world's most feared, respected and powerful air and space force.

*2nd Lt. Christopher Grenz*
*RAF Mildenhall, England*

**Top notch**: "The airfield team arrived here with one job to do — ensure aircraft could safely navigate and land in and around Tallil. They have done this job better than anyone else in Iraq."

*Maj. Craig Wilcox*
*Commander, 407th Expeditionary Communications Squadron*

**Making due**: Some of this equipment is really old, and it's labor intensive. Combine that with 24-hour operations covering the entire portion of Iraq, and you've got a challenge to work with.

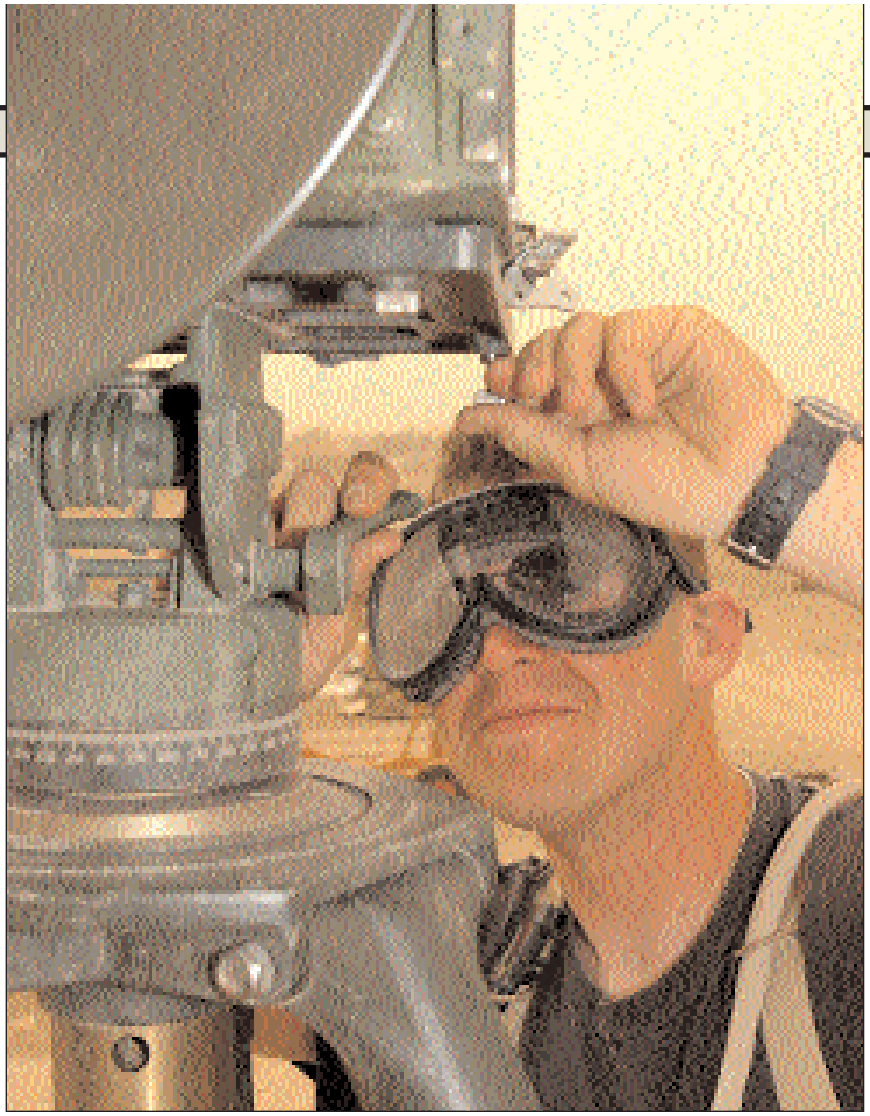
*Senior Master Sgt. Jeff Patterson*
*332nd ECS Airfield Systems superintendent*

**Despite the odds**: I can say that we have near 100 percent reliability rate on our Air Traffic Control and Landing Systems. The people make the difference.

*Maj. Maurizio Mazza*
*332nd ECS commander*

Tech. Sgt. Carl Castell digs a manhole at Al Udeid Air Base in Qatar that will house cables for the 379th Expeditionary Communications Squadron.

Staff Sgt. Dawn Finniss / AFPN



Master Sgt. Terry Blevins / 36th CCS

**Airman 1st Class Jason Fahner secures a microwave module atop a structure for line-of-sight communications at Tallil Air Base in southern Iraq. Airman Fahner is a member of the 5th Combat Communications Group at Robins Air Force Base, Ga., which deployed to the base.**

Master Sgt. Terry Blevins / 36th CCS

**Staff Sgt. Dennis King (right) shows Staff Sgt. Tarsha Harper how to build a computer-network cable that will connect computers in the communications facility at Tallil Air Base, Iraq. They are both members of the 5th Combat Communications Group from Robins AFB, Ga.**

# AROUND *the* WORLD

**Overcoming obstacles:** "Our biggest challenge was not so much installing and generating core communications services, but maintaining the systems against the ravages of heat and sand. We had to conduct preventative maintenance every eight hours, including canned air to blow out the drives, vents and filters as well as vacuuming each section of the tent to pick up the sand that was tracked in on our boots."

*Tech. Sgt. Kim Korber*
*Tinker AFB, Okla.*

**Making it happen:** With only two C-130s full of equipment, the small group [from the 506th Expeditionary Communications Squadron] provided DSN, NIPRNET and SIPRNET services to Air Force people. Initial services were provided in a communications cafe on the compound, which instantly became the hub of activity.

*Maj. Scott Moser*
*506th Expeditionary Communications Squadron*

**The tool man:** Other than desktop needs, I also had an interesting time constructing a 26-foot antenna tower out of bombed-out tower parts, an old tow bar from a MIG aircraft and scrap wood from our building construction site. We finally got our radio antennas high enough to talk with incoming aircraft — another unanticipated communications requirement that came together the hard way.

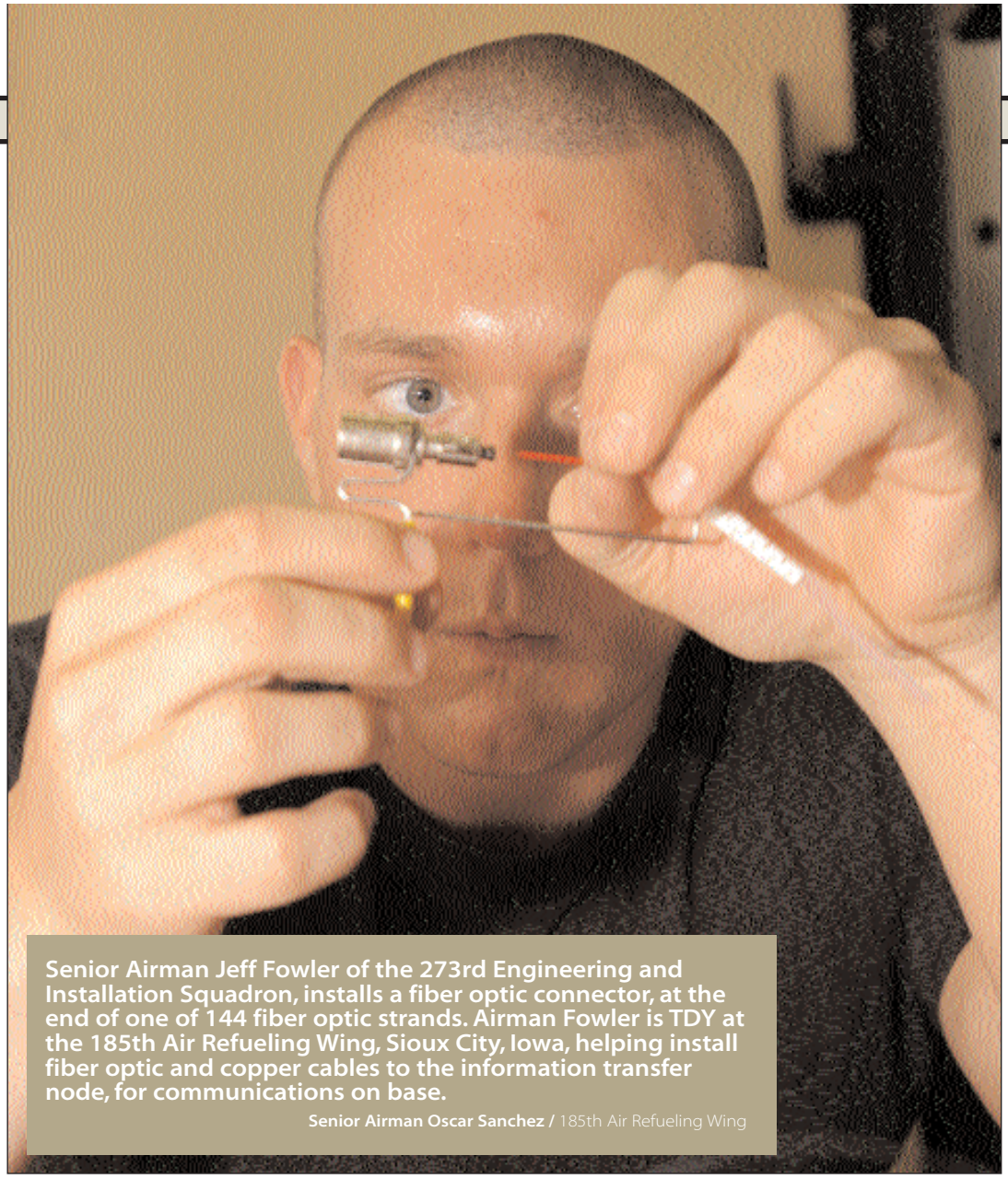
*Capt. Eli Martinez*
*Tinker AFB, Okla.*

**Who's your comm troop?:** Are we the troops who fight our way in and set up base operating support or C2 communications? Or are we responsible for sustainment communications? The answer to both these questions is yes. Combat communicators see themselves as warriors first and stay ready to deliver combat enabling communications, information and airfield systems capabilities anytime — anywhere.

*Capt. David Neuman*
*Tinker AFB, Okla.*

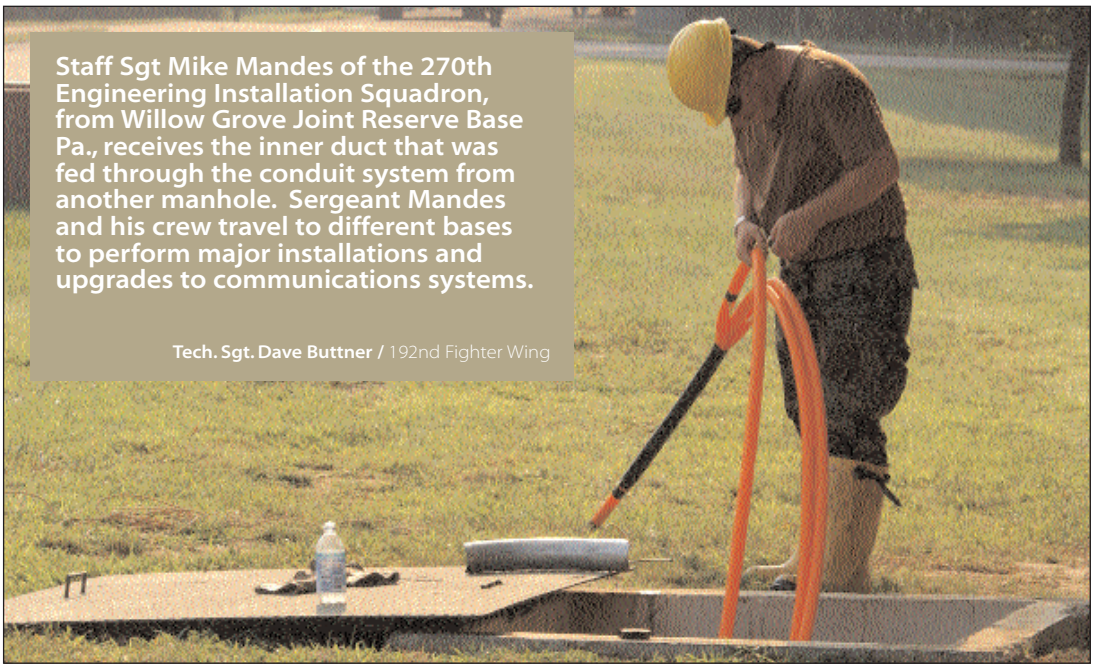

The mission of Engineering and Installation squadrons is to mobilize and deploy authorized assets and resources anywhere in the world. The teams engineer, install, constitute, reconstitute, expand, enhance and or replace C4I systems to attain information dominance.

Courtesy photo



Senior Airman Jeff Fowler of the 273rd Engineering and Installation Squadron, installs a fiber optic connector, at the end of one of 144 fiber optic strands. Airman Fowler is TDY at the 185th Air Refueling Wing, Sioux City, Iowa, helping install fiber optic and copper cables to the information transfer node, for communications on base.

**Senior Airman Oscar Sanchez /** 185th Air Refueling Wing



Staff Sgt Mike Mandes of the 270th Engineering Installation Squadron, from Willow Grove Joint Reserve Base Pa., receives the inner duct that was fed through the conduit system from another manhole. Sergeant Mandes and his crew travel to different bases to perform major installations and upgrades to communications systems.

**Tech. Sgt. Dave Buttner /** 192nd Fighter Wing

# Our summer in Baghdad

Point of View

It took two long weeks, but we finally arrived in Baghdad carrying what seemed to be like tons of luggage and weapons.

I don't think anyone on our team will ever forget the high emotions as the C-130 we were on made its final approach. Other than the engines' roar, the plane was silent. Everyone had a look of concern and uncertainty on their faces. The plane landed, the rear deck was lowered, and a young airman with a face marred by dust stepped on board and barked, "Welcome to Baghdad!"

The air was thick and full of smog, and smells of a country torn by war. We were in shock from the moment we stepped off of the plane. It's hotter than an oven and there are bullet, artillery, and bomb holes everywhere. It was surreal to say the least.

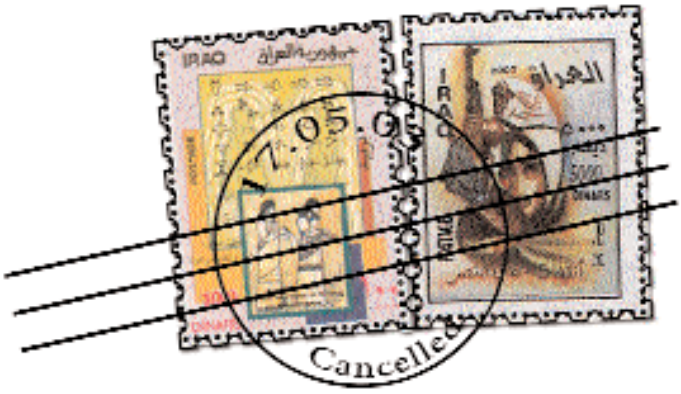
Reality, however, sets in fast. We are in-briefed and informed that we will be shouldering our weapons loaded at all times. We are confined to the former Saddam International Airport, and not authorized to go downtown, it's still too dangerous.

The day before we arrived, the 728ACS out of Eglin AFB, Fla., lost a man while traveling by convoy. He was killed when he was shot in the chest by a sniper. We are right next to their tents in tent city, and some of them are still having trouble dealing with it. Recently, an Iraqi Republican Guard soldier was captured on base by three air traffic controllers. There is also an Iraqi POW camp right down the road, and they have had numerous escape attempts since our arrival. We have been told that if we see an Iraqi on base, unescorted, we have the responsibility to detain them and call for security forces to come. There are also unexploded ordnance everywhere, mostly American submunitions.

There is no commercial running water or power. The water is brought in by truck, and portable generators are our only source of power. When we arrived, the facilities were unlike anything I have ever seen. Modesty takes a back seat in this camp, that is for sure. The toilets are plywood huts with a hole cut in the plywood, men and women use the same toilets, and the hut is only about chest high with no roof, so everyone in the world could see you doing your business. Urinals for men are PVC pipes sticking out of the ground. Just walk up and make your deposit. Showers are canvas bags hanging up with holes in the bottom; you would fill them with water and jump underneath. Laundry is done by filling buckets with water off of a water truck and scrubbing them by hand.

The base was just a skeleton when we got here, but each day improvements are made. Our team gets much satisfaction in knowing that we are an integral part of the shaping of this new air base. We are installing communications infrastructure to almost every facility on this base, and doing it with little to no tools, and with a team of mixed experience and expertise. We went almost a month without any tools or equipment. We had to beg, borrow and steal just to get enough supplies and tools to keep busy each day. About half of each day was spent scrounging for the essentials. The other half was spent laboring with makeshift tools under the hot sun.

We never thought we would ever be in this type of situation, but we are making the most of it. We get along unbelievably well for eight guys who spend all 24 hours a day together. Just thinking about it, I have not spent this much time consecutively with any individual, including my own family, since maybe basic training. We are all becoming like brothers to each other. We laugh, ridicule and sometimes fight just like brothers. If we left today without any recognition or thanks for the job we have done, we have pride in knowing we did a good job, served our country and gained the brotherhood and trust of our teammates.




AIR MAIL

# By Tech. Sgt. James Burmeister

## 216th Engineering and Installation Squadron

Graphic illustration by Tech. Sgt. Jim Verchio / *Intercom Editor*

# TACTICAL COMM

## 1st CCS takes tailored package to front lines

Staff Sgt. Karen Silcott / 52nd CS

**Senior Airman John Ervin from the 52nd Communications Squadron Spangdahlem Air Base, Germany, configures a communications router in support of Joint Task Force Liberia. He is trying to establish a connection with the Croughton Royal Air Force remote site from his site at Dakar International Airport in Senegal.**

**BOTTOM LINE**

**The team combined equipment from three different Unit Type Codes, enabling them to decrease their footprint and increase their productivity.**

**By Capt. Sean Ellars**
*JTF Liberia liaison officer*

Six days after President Bush ordered U.S. troops to support military operations in Liberia, a late night phone call ordered the 1st Combat-Communications Squadron into action.

The mission directed the 1st CCS to provide a dedicated SIPRNET link for video teleconferencing between the Joint Task Force Liberia commander and one of his liaison teams.

This tailored mission called out the dedicated services we generally provide an air base with an equipment footprint no larger than a single pallet. We were to support a 10-man Army liaison team and a West African coalition to deploy and ensure the peaceful resolution of Liberia's 10 year civil war.

Faced with the challenge of designing a specialized communications solution within 12 hours, the engineers devised an elegant solution. Combining equipment from three different Unit Type Codes, they built a package containing a USC-60A satellite terminal, a Promina multiplexer, a commercial voice switch and a complement of data routers and switches. Twenty-four hours later, the six-man team and one pallet boarded a diverted C-130 and were enroute to Accra, Ghana.

The Air Force tactical communications community is moving to modular, mission-centric UTCs that provide a common set of services for varying mission sizes and away from UTC's built around equipment. This mission exemplified this new construct, and in the near future, a specific UTC rather than a uniquely engineered solution would have met this mission.

This new construct however will require much more of our technicians and leadership. Traditional processes that have specialized our maintenance

technicians and evolved a hierarchical management ladder will give way to technicians who are multi-functional with consolidated management practices.

When our UTC's deploy to support a forward air base, we take a full complement of Air Force specialties and a staff that permits us to specialize tasks with a minimum of overlap. Smaller teams supporting smaller expeditionary missions will require that we change this mentality. In Accra, because of our limited number of people, we couldn't have all of the specialties present, so we had to train everyone in the basics of monitoring and troubleshooting the systems we were operating: satellite terminals, mulitplexers, routers and voice switches.

We were also challenged to tailor the management functions used for the larger sites to meet our small customer base and network size. Traditional processes for administering syscon, helpdesk, and job control carried too much manpower and documentation overhead. The smaller user base and smaller communications team made the coordination process much simpler, and our technicians generally did not have a backlog of tickets to prioritize. Rigidly applying established procedures would simply have frustrated the customers and decreased our ability to quickly adapt to their evolving needs.

"As the last two years have shown with OEF, OIF, and now operations in support of Liberia, our communications people and equipment need to be even more tailored than in the past," said Col. Mike Lewis, commander of the newly activated USAFE Air and Space Communications Group. "We need to provide just the right amount of communications quickly and as lean as possible for transport. These tailored packages are the right moves to do this, but until our procurement and implementation systems catch up, we'll be relying on the outstanding creativity and flexibility of our combat comm warriors to lead the way."

## REPUBLIC OF LIBERIA FAST FACTS


**▸▸ Location — Western Africa, bordering the North Atlantic Ocean, between Cote d'Ivoire and Sierra Leone**

**▸▸ Current environmental issues — Tropical rain forest deforestation; soil erosion; loss of biodiversity; and pollution of coastal waters from raw sewage**

**▸▸ Population (as of July 2003) — 3,317,176**

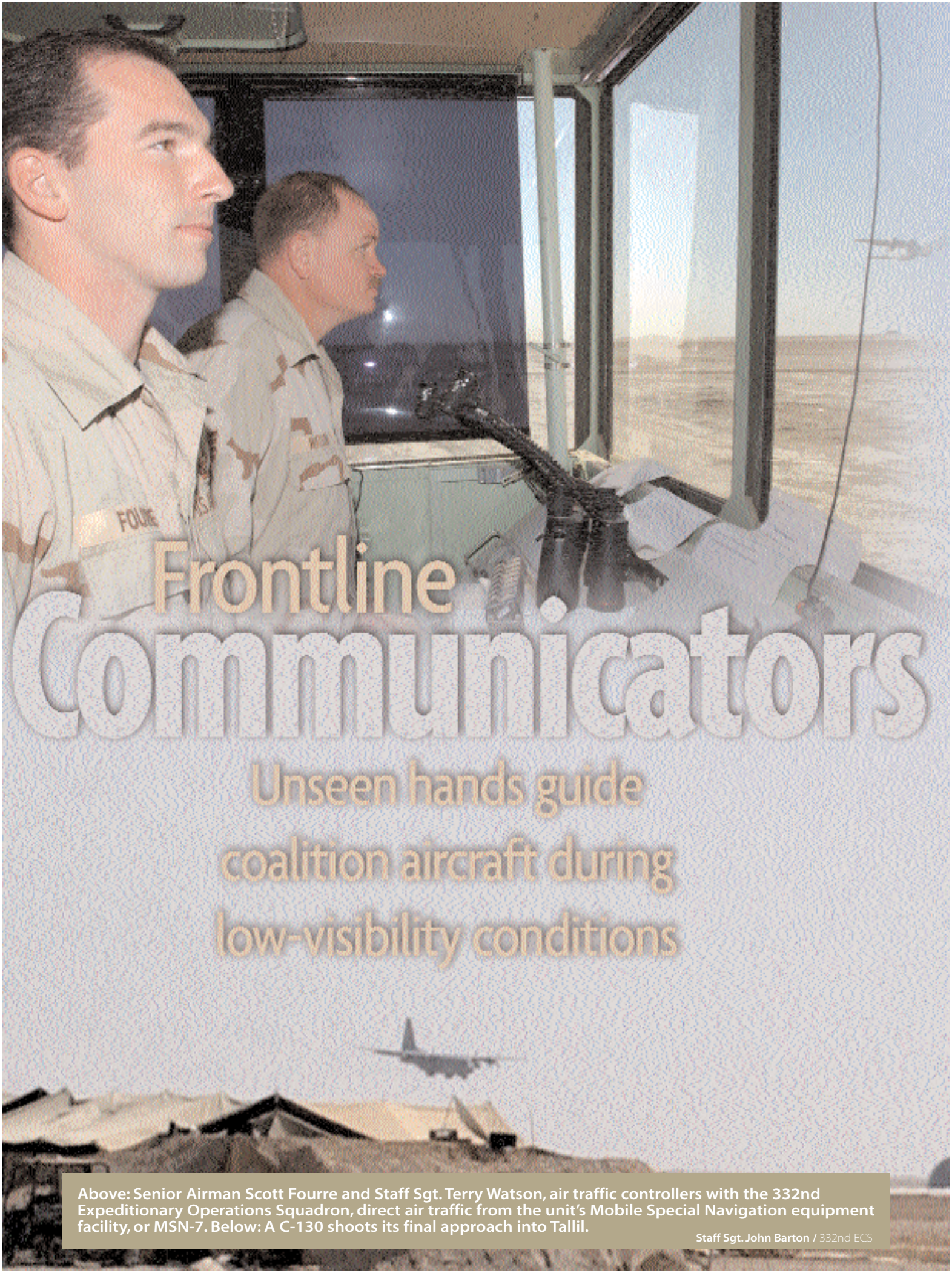
**▸▸ Religious beliefs — Indigenous beliefs, 40 percent; Christian, 40 percent; and Muslim 20 percent**

**▸▸ Population below poverty line — 80 percent**

**▸▸ Military branches — Army, navy and air force**

**▸▸ Why is America involved? — Quoting a statement from the White House, "Together with our allies and friends, we must help strengthen Africa's fragile states, help build indigenous capability to secure porous borders, and help build up the law enforcement and intelligence infrastructure to deny haven for terrorists."**

**source:** CIA World Factbook



# Frontline Communicators

## Unseen hands guide coalition aircraft during low-visibility conditions

Above: Senior Airman Scott Fourre and Staff Sgt. Terry Watson, air traffic controllers with the 332nd Expeditionary Operations Squadron, direct air traffic from the unit's Mobile Special Navigation equipment facility, or MSN-7. Below: A C-130 shoots its final approach into Tallil.

**Staff Sgt. John Barton** / 332nd ECS

By Master Sgt. Don Perrien
*332nd Air Expeditionary Wing Public Affairs*

**TALLIL AIR BASE, Iraq —** An A-10 Warthog circles above the southern Iraqi desert before making its final approach to the near-barren flightline here. A blinding wind shaves the ground, creating a brown wall of dust between the plane and the runway. The A-10's landing gear lowers into place as its nose tilts slightly upward. Seconds later, even in almost zero visibility, the plane touches safely down as if guided by unseen hands.

Those unseen hands belong to the 332nd Expeditionary Communications Squadron's Airfield Systems Flight and its Air Traffic Control and Landing System, or ATCALS. The ATCALS is a deployable equipment package, consisting of a tactical air navigation system, a mobile control tower and radar systems designed to help aircraft land safely in low-visibility conditions.

"Without the ATCALS, our pilots would be flying blind," said Maj. Maurizio Mazza, 332nd ECS commander. "And believe me, Iraq is not a place where you can afford to be flying blind.

"We provide the pilots supporting Operation Iraqi Freedom with an extra set of eyes and ears," the major said. "With the weather conditions and other threats we have here, you need all the extra help you can get."

Temperatures at Tallil Air Base can exceed 130 degrees, and combined with ever-present wind and dust storms, create a difficult environment to setup and maintain delicate electronic equipment such as the ATCALS.

Tech. Sgt. Thomas O'Connell, 332nd ECS radar maintenance NCOIC, describes the southern Iraqi weather and dust as "borderline miserable," but he and his staff have used some innovative solutions in working around those obstacles.

"The biggest problem we have is the heat – heat is the enemy," Sergeant O'Connell said. "The hotter the equipment gets the more unstable it can become. Unstable is bad when it comes to precision radar."

We've been using camo netting as a sunshade, since the best way to 'beat the heat' is to keep the sun off the metal surfaces of the ATCALS equipment. We've also added an additional layer of insulation and found ways to use bigger air conditioners than the ones the ATCALS deploys with."

The Precision Approach Radar used by the 332nd ECS is a good example of the squadron's ingenuity. An Environmental Control Unit designed to cool an entire 2,000 cubic foot tent sits on the shelter's roof. Ducts jut out from the ECU's sides – one for the inside of the building, and the second sending cold air to the antenna boom. This reduces the temperatures not only from the heat of the sun, but from the radar's internally generated heat as well.

Besides the physical changes, the 332nd ECS has developed flexible staffing and manning procedures to keep the ATCALS up and running.

"Some of this equipment is really old, and it's labor intensive," said Senior Master Sgt. Jeff Patterson, 332nd ECS Airfield Systems superintendent. "Combine that with 24-hour operations covering the entire southern portion of Iraq, and you've got a challenge to work with.

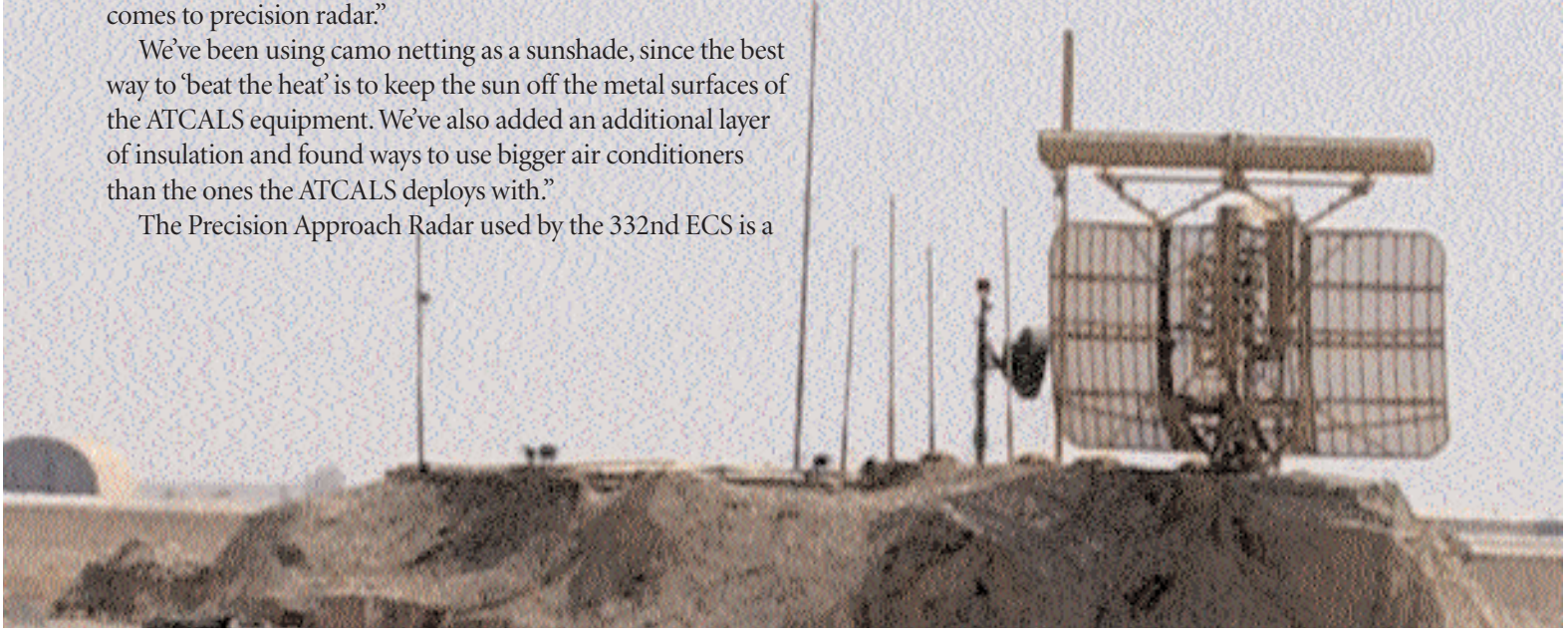
"So our key is being self-sufficient, and preventing failures. Not only did we increase the interval on the preventative maintenance inspections, we decreased the distance between the maintainers and the equipment. We're here when the operators find a problem, not back at tent city."

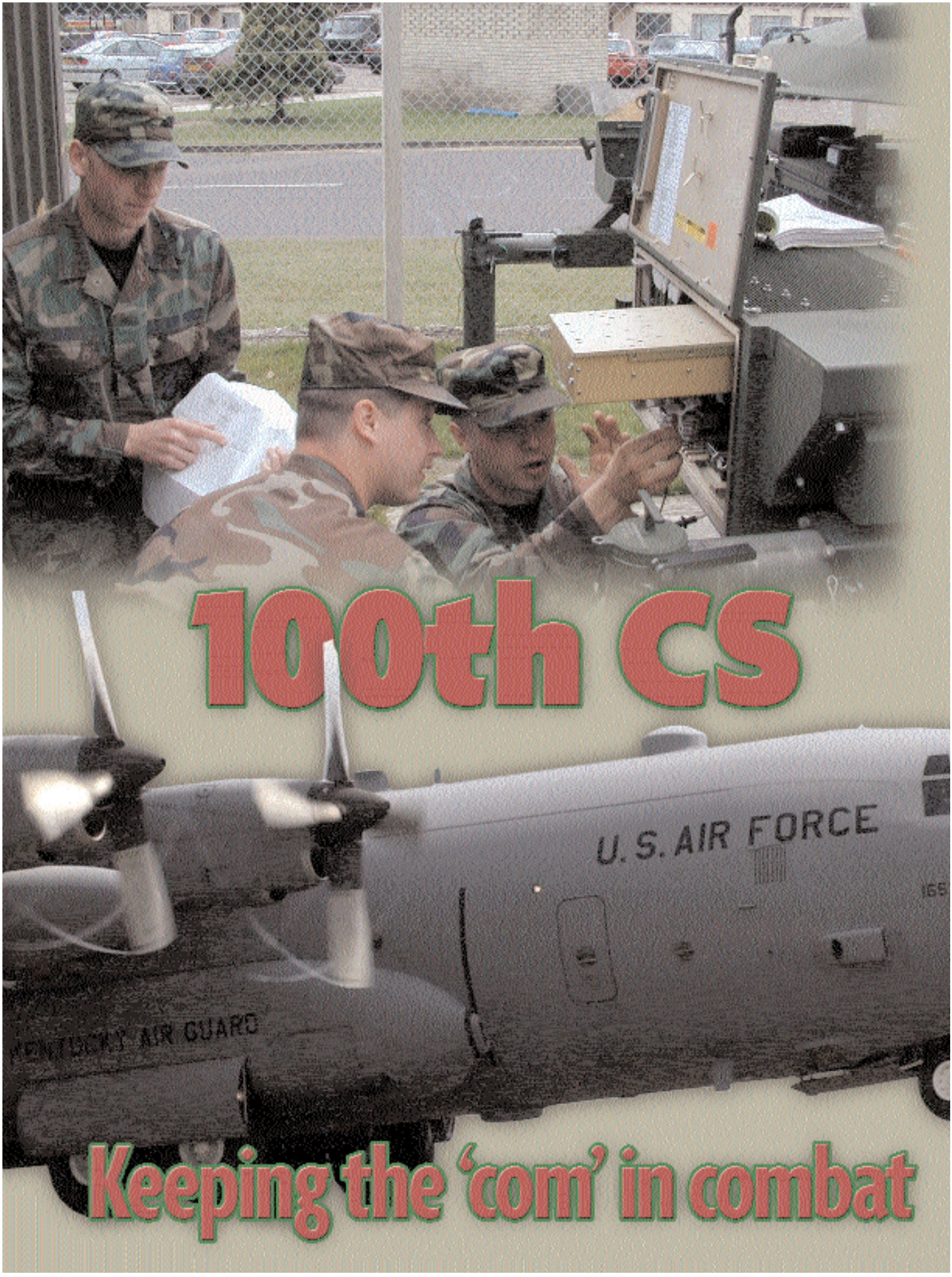
Such commitment to the mission has helped the ATCALS system maintain an unparalleled degree of reliability.

"I can say that we have a near 100 percent reliability rate on our ATCALS; it's darn close," Mazza said. "The people are what make the difference. Having a deployable system is one thing, having deployable airmen to support it is another. Here at Tallil, with the ATCALS and the 332nd ECS – we have both."

**BOTTOM LINE**

**The 332nd Air Expeditionary Wing uses the Air Traffic and Control Landing System to guide coalition aircraft into Tallil AB, Iraq.**






# 100th CS

## Keeping the 'com' in combat

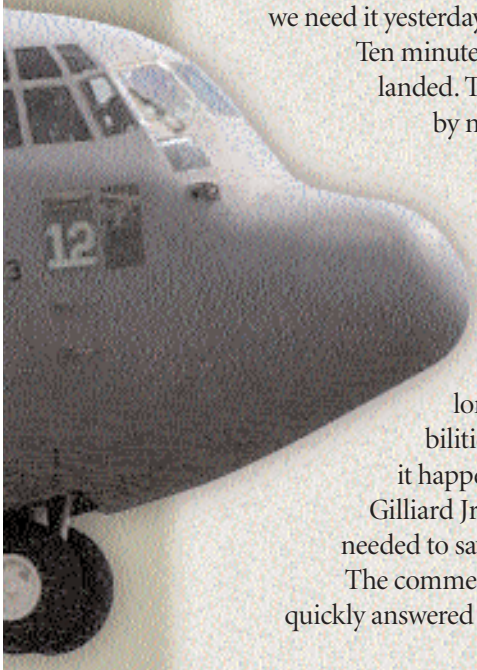
By 2nd Lt. Christopher Grenz
*100th Communications Squadron*

RAF MILDENHALL, England — Every combat system in the Air Force today is indebted to communications dominance. The Air Force's application of force, the control of force projection and the protection of our capabilities to fight and defend in the information age are all products of the new battlefront controlled by Air Force communicators. Bringing this new battlefront to its victorious end is the profession of the men and women of communications squadrons around the world; the 100th Communications Squadron is among those keeping pace.

A common quote among communicators is, "There can't be combat without COM." Never has there been a time when this is more evident than in today's fast-paced world of high-tech wizardry and cutting-edge technology. Operation Iraqi Freedom convincingly displayed this evidence for the world to see through a communicator's eyes.

In-garrison manning had been reduced to near 64 percent. Equipment was being shipped to the front lines of the conflict. But when the first planes landed, the 100th began pounding was already in high gear.

The short-notice scramble started when three wings were diverted to accommodate the lack of air corridors and staging points for combat missions north of Iraq. The initial call came down from Command Post as the first KC-135 touched down, "We need comm, lots, and we need it yesterday!"



Ten minutes later, the second tanker had landed. The base's population increased by nearly 50 percent and soon the requests would start rolling. Commanders targeted their requirements first: Command and Control, lodging for the troops and all the computers, cell phones, radios, Land Mobile Radios and long-range communications capabilities we could manage. "Let's make it happen," was all Lt. Col. Prince Gilliard Jr., commander of the 100th CS, needed to say — the 100th was in action.

The commercial communications section quickly answered the commanders' requests. Scrambling to meet the demand, the LMR shop resurrected three event nets and supplied 160 radios for local and down-range use. In addition, the commercial comm shop purchased, organized and deployed more than 120 pay-as-you-go cell phones. This gave commanders and key personnel instant access and control throughout their newly formed wings. But even as commanders' control was solidified, the war was about to begin, and operations were teeming with challenges needing to be met head-on.

With people arriving and aircraft bedding down, the 100th created network accounts to guarantee sustainable, long range C2 communications to forward-deployed commanders. Managing this effort on a $54 million weapons system was the job of the 100th Network Control Center. If telephones and computers are the means by which commanders project C2, the network is the backbone making those functions a reality.

Access to the network guaranteed C2 to commanders, providing their troops with access to family and friends back home while ensuring the mission's success. Network access, local communications and long-range reach-back allowed maintainers to track aircraft parts, maintenance, flight plans, allowed secure Air Tasking Orders to flow and created the instant access to information that proves decisive in a firefight or on a bomb run.

**BOTTOM LINE**

**At the beginning of Operation Iraqi Freedom, the 100th CS at RAF Mildenhall met the challenge of an increased workload when transient units arrived on base.**

Despite overwhelming requests, the 100th and its people made the operation a complete success. The newly formed wings were supplied with critical C2, network access, cell phones, LMRs and long-range assets. The squadron's efforts guaranteed the B-52s flying out of nearby RAF Fairford were on target, had the information they needed, had the support required and had the gas from the KC-135s to deliver bombs on target.

Without comm, fighting a war and proving mission successes simply would not be possible.

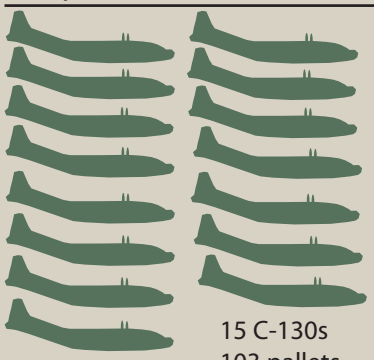
Communications is key; proven in combat and proven in daily operations we succeed.

# DEPLOYABLE COMM PACKAGES

A quick look at how the Air Force is transforming its communications footprint

*Today's Air Force and joint warfighter requires lighter, leaner, and more versatile communications to conduct command and control, and support functions at all levels of conflict. Here's a past, present and future look at some of the communications packages the Air Force deploys.*

## PAST: One size fits all mentality



Transportation

15 C-130s
103 pallets

Size

7 large "boxes"

142 troops deployed

Scope

72+ hour response

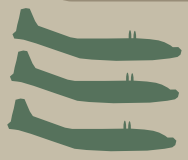
**Major Theater War** focus

**TDC** Theater Deployable Communications

- voice
- messaging
- ATCALS (Air Traffic Control and Landing Systems)
- alert comm

During Operation Enduring Freedom, combat communications employed large unit type codes with a "one size fits all mentality." Because there was no published plan to phase in combat communications capability, the Air Force employed a pick-up game philosophy to support the mission and used combat communications units for indefinite sustainment missions. For Operation Iraqi Freedom, comm planners recognized that every base did not need a full TDC package.

## PRESENT: Tailored packages



3 C-130s
12 pallets

Smaller, more compact units

129 troops deployed

24-72+ hour response

**MTW/Small Scale Conflict** focus

**8-8-8** Initial Comm Package

*8 DSN, 8 NIPRNET and 8 SIPRNET drops. These teams establish these services in just hours at remote locations in the war zone—sometimes in blackout conditions. The teams are made up of five troops and five pallets to include organic power, environmental control and base support for self-sustainment and could be deployed on a single C-130.*

- voice
- messaging
- ATCALS
- weather
- networks
- alert comm
- VTC (video teleconferencing)

**DICE** Deployable Independent Communications Element

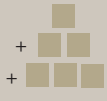
*DICE expands the capability of the '8-8-8' packages, incorporating VHF/UHF radios for ground-to-air communications. DICE Teams can provide 40 DSN, 46 SIPRNET, and 22 NIPRNET drops within a 100-meter radius.*

**FLY-AWAY KITS** Comm for liaison officers

*These packages allow liaison officers, deployed to coalition embassies in the Gulf region, to stay in contact with the Combined Air Operations Center and to maintain situational awareness of air tasking orders and SCUD alert warnings. Each package is comprised of two comm troops and a lightweight, portable suite of comm equipment.*

## FUTURE: Phased deployments

Partial C-130
0, 4, 9, 12 pallets



Scalable response

<80 troops deployed

8+ hour response

**Full Spectrum** focus

Phase 1 Initial Comm **advon, DICE, '8-8-8', Fly-Away Kits*

Phase 2 Central base services

Phase 3 Base build up, ATCALS

Phase 4 Base expansion

Phase 5 Exit planning

- voice
- messaging
- ATCALS
- weather
- networks

- alert comm
- VTC
- ISR (intelligence, surveillance, reconnaissance.)
- data links
- C2 integration
- Information Operations

**Future initiatives:** *True multi-band satellite operations—using the full bandwidth spectrum, more robust ISR support, employment of wireless technology, beyond line-of-sight radios, machine-to-machine capabilities and refinement of reachback capabilities.*

**By:** Master Sgt. Karen Petitt **Source:** Maj. Tara Routsis, ACC/SC

COMM WAR EFFORTS

# Made a difference

## WE CAN BE PROUD OF

By Col. John Hayes
*U.S. Central Command Air Forces*

SHAW AIR FORCE BASE, S.C. — As we go through life, we all want to feel like we made a difference and that our hard work meant something. For all of us involved in the communications planning and execution of Operation Iraqi Freedom, we can feel proud of the difference we made.

Point of View

That difference had a lot to do with us applying lessons learned from how we responded in Operation Enduring Freedom to our folks having nine months to prepare for the war in Iraq.

For many years, we've known that our deployable communications units were not properly equipped to meet their wartime taskings, but we were never able to acquire the necessary funding to resolve this shortfall.

As Operation Enduring Freedom began, we used a contingency fund cite to order required supplies and communications systems for deploying units. This effort failed miserably because there wasn't proper time to place the order and then deliver the equipment before OEF combat operations commenced. Required computers, secure telephones known as STEs, and land mobile radios arrived after the Taliban were defeated.

In contrast, we retained access to contingency funds and spent almost $130 million to pre-buy the required items before the units deployed for OIF. This ensured the required equipment was delivered to the deploying units before they deployed and to the existing bases in the theater that were being expanded before their extra forces arrived. The outstanding initiative of the team led by Maj. Jim Sahm, also allowed us to install commercial SATCOM terminals in the theater before the user community arrived. There's nothing better than having the communications infrastructure operational before the customers start arriving.

Simultaneously, Majs. Doug Miles and Kevin Payne led a total-force team in building communications plans for bases in theater. They provided communications paths off each base, with at least one path being commercial Ku-band SATCOM. We had combat comm units opening up new bare bases, AMC comm units supporting tanker and airlift bases, USAFE units supporting northern tier beddown locations, and fixed base Theater Deployable Comm units augmenting existing bases as the user populations at these bases sometimes doubled the size of the base.

Throughout this effort, we worked closely with lead planners (primarily tactical engineers and systems controllers) from the units that would be tasked to deploy in support of OIF. We also brought in senior representatives from the supporting major command staffs and briefed them on our plans, requirements, and planned sourcing. The trust, confidence, and flexibility created during this planning process proved invaluable.

Another group of communicators led by Col. Tony Buntyn and Lt. Col. Wayne Thomas were busy rebuilding the Combined Air Operations Center located at Al Udeid AB, Qatar. This CAOC was initially built in 2001 and served as a back-up to the CAOC at Prince Sultan AB, Saudi Arabia, during OEF. In the Spring of 2002, leaders directed that Al Udeid CAOC be upgraded so it could assume responsibility for Operation Southern Watch, as well as air operations supporting ground troops in Afghanistan and the Horn of Africa. Al Udeid would also provide insurance in case political constraints placed on the PSAB CAOC made it unfeasible to use for Iraqi operations. The warehouses containing the Al Udeid CAOC and Intelligence Surveillance Reconnaissance Division facilities were equipped with the communications networking capabilities and command and control systems required. Then command and control of Afghanistan and Horn of Africa air operations shifted to the Al Udeid CAOC staff so the PSAB CAOC could focus solely on Iraqi operations.

By summer, senior leaders asked that the PSAB CAOC be better suited to support war operations. So, this team reconfigured it just prior to a commander's exercise of the Iraqi war plan.

So many people contributed to the successes we had in OIF. Even though their names may not be mentioned in articles or seen in photos, their accomplishments are something they can be proud of.

**BOTTOM LINE**

**Having nine months to prepare, buying the right supplies at the right time, and having outstanding people to plan and execute the war were key to comm's success.**

# COMM Lessons Learned

By Col. John Hayes
*U.S. Central Command Air Forces, Shaw AFB, S.C.*

While there were many successes in Operation Iraqi Freedom, and while our communications efforts were outstanding, there are some things we've learned ... things that need to be addressed as we continue to support the War on Terror.

## Bandwidth Planning Tool

As we were building the communications architecture for OIF, we did not have a good technical approach to forecasting how much bandwidth we needed for each base. While the Air Force Communications Agency's network modeling folks gave us a good start, we had to make some educated guesses on how much secure and non-secure bandwidth to lay into each base.

We started by looking at the amount of bandwidth installed at bases during previous combat operations, such as Operation Enduring Freedom and Operation Allied Force. We also looked at the types of missions that would be bedded down at each base recognizing that strike aircraft needed more bandwidth than tankers and C-130s. Strike aircraft needed more SIPRNET and JWICS bandwidth for mission planning and then battle damage video transmission after the missions were completed.

## Total Force Teaming

We used active duty and Air National Guard combat comm squadrons to open up our new bases. We used active duty Theater Deployed Communications units to augment existing bases that were expanded for the war. We used Air Mobility Command units to support tanker and cargo bases. And, we used Air National Guard Engineering and Installation forces to help activate and expand communications infrastructure at new bases and existing bases. Planning helped ensure early access to ANG forces because we prepared their mobilization orders in advance, and many people were actually working in their units as the orders were processed. We also integrated Air Force Special Operations Forces communications packages into Air Force host base communications units, where possible, but always ensured the Air Force Special Operations Command comm forces could be pulled out and deployed forward to other bases without disrupting communications services.

## Commercial SATCOM

Commercial SATCOM is a must in today's combat environment. The Defense Satellite Communications System can't provide sufficient bandwidth to relatively fixed, in place Air Force customers and continue to support the more mobile Army SATCOM requirements. This growing dependence on commercial SATCOM comes with risks. We must be able to plan our commercial SATCOM use early enough to initiate leases that lock up Air Force usage, otherwise we will find ourselves in a bidding war with CNN trying to obtain the last of available bandwidth.

We must also remember that commercial SATCOM does not have any anti-jam capability. Our growing reliance means our tactical communications units must practice their circuit/service activation skills. Training with commercial SATCOM is more expensive than using the "free" DSCS system, but it must be done. Combat operations are not successful if we take 30 days to activate commercial SATCOM services.

## Investing in Radios

Our Air Force needs to get serious about investing in narrowband Demand Access/Demand Assigned UHF TACSAT capability. Even though it's been years since the Joint Staff directed the Services to migrate to DAMA radios, the Air Force has never prioritized its needs high enough to get funded. This lack of DAMA capability had a direct impact on the Air Force's ability to prosecute OIF. During OIF, we flew three simultaneous JSTAR missions but only had one UHF TACSAT channel to push the Moving Target Indicator dots off the aircraft. This meant the other two aircraft could not pass their data back to the PSAB CAOC and the air battle managers in the back end of the JSTARS were forced to take on the targeting mission without having access to all the other intelligence feeds that are found in the CAOC. Also, the lack of DAMA radios in our Terminal Air Control Parties prevented them from having direct communications back to PSAB CAOC. This had a direct impact on their ability to call for additional firepower.

## Better Aircraft Comm

Communication to aircraft needs to be greatly improved. Gen. Michael Moseley said OIF showed us that "Our Air Force has advanced into the digital age; however, communications to our aircraft is stuck in the analog world." One of mantras of the Chief of Staff Gen. John Jumper is that we need to advance to machine-to-machine communications. Nowhere is this need more evident than with our current generation fighter aircraft. Most are either equipped with Joint Tactical Information Distribution System or Situational Awareness Data Information Link to share information across the net, but we don't have much of a capability to extend the net beyond line-of-sight. This is because the fighter aircraft don't have SATCOM, and we don't have airborne communications relays. Instead, we had to use ultra-high frequency TACSAT voice nets to relay information from the CAOC through AWACS and JSTARS aircraft to the strike aircraft. Why would the CAOC want to be able to talk directly with fighter aircraft? To be able to redirect or retarget them to hit time sensitive targets that pop up such as Saddam Hussein. The only exception is when we could use a UHF TACSAT data channel to specially equipped bombers, but it had its problems. During the first few days of OIF, the CAOC could not communicate with strike aircraft operating over northern Iraq because the AWACS and JSTARS aircraft were operating in southern Iraq and could not communicate via line-of-sight UHF radios with the northern aircraft. We need the ability to extend comm to fighter aircraft operating anywhere in the combat theater.

## Coalition Interoperability

Coalition interoperability was a good news/bad news story. The good news is we had unprecedented ability to share releasable information with our allies by using various versions of Central Exchange of Intelligence Information networks. Each CENTRIX was driven by the allies on the network. Foreign disclosure rules drove what information could be shared with each ally, so we grouped our allies with similar foreign disclosure rule sets. During OEF we used a Community of Interest Network to share information with Saudi Arabia. During OIF, we used three separate CENTRIX networks to share our releasable [intelligence] with our allies. The bad news is that while CENTRIX allowed us to share products, it did not allow our allies to participate in the processes used to develop the products because our allies are not allowed access to SIPRNET. However, an outstanding team developed a system that allowed members of the Royal Air Force to operate the most critical command and control systems even though they resided on SIPRNET. This "reverse firewall" prevented these allies from accessing SIPRNET outside the CAOC, but did allow them to fill critical positions, such as the CAOC director, during the war. Never before have our allies had this kind of access to our SIPRNET-based systems. This small first step was an important breakthrough in coalition sharing and needs to be continued. We need a system that can be accredited for full-time use, and able to support classified e-mail and file sharing.

## Tailored Comm Packages

We need to be able to provide tailored communications packages. Air Mobility Command began this effort under the direction of Brig. Gen. William Lord and now Air Combat Command is moving in the same direction under his continuing direction. However, as of January we only had two types of communications packages we could deploy: a basic Theater Deployable Communications package that could support 1,500 customers, or a suitcase INMARSAT Fly Away Kit that could support one person.

We needed something in between and by mid-March a team developed a SLICE package that could provide eight NIPRNET drops eight SIPRNET drops, and eight DSN lines. These were called SLICE packages because they took a small slice of TDC equipment and married it up with a small Ku-band commercial SATCOM terminal to provide first-in communications at the bases we opened up inside Iraq. The communications equipment for this package could fit on one pallet. At one location, the equipment was rolled off a C-130 at 6 a.m. and was fully operational in 12 hours. We need to formalize this capability and make these essential unit training codes for war planners to use as first-in communications packages at a bare base or as communications packages for small special-purpose teams such as embassy plus-up teams.

## Supporting the Tools

We have to get smarter on how to provide network support and system administration to collaborative tools such as the Information WorkSpace, Automated Deep Operations Coordination System, and Microsoft Internet Relay Chat.

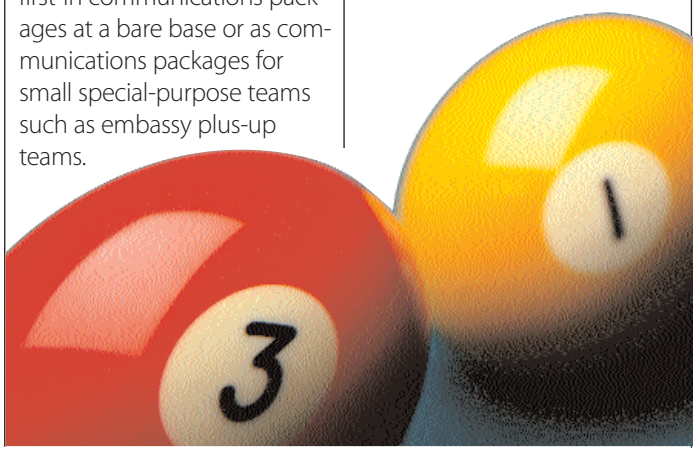
I would never have guessed before the war how important these systems became in shortening the time-sensitive targeting kill chain.

They allowed Air Force, Navy and Army targeteers to immediately coordinate between themselves to determine the best approach to kill a target and deconflict potential fratricide possibilities.

Unfortunately, we had no military personnel and very few contractors who could keep these critical systems operational.

When we had problems with IWS performance, we had almost nobody to turn to for advanced trouble shooting assistance and those who tried to help us were unsuccessful. Daily system reboots became the only way we could ensure IWS worked throughout the 24-hour per day combat cycle.

We have to get better at supporting these systems.



Second Lt. Dustin Johnson, 39th Communications Squadron, installs a new fiber optic telephone card into the fiber optic wireless integrated access Digital Loop Carrier. With this upgrade, the 39th CS will have an additional 384 telephone lines.

**Photos by Airman Joseph Thompson /** 39th CS

# Fiber replaces copper in Turkey

## Incirlik's mission, phone security enhanced thanks to technology

**By 2nd Lt. Dustin Johnson**
*39th Communications Squadron*

**The install team pictured from left to right are: Mr. Tom Hoffman; Mr. Harold Ramey, both contractors from LTI DataComm; 2nd Lt. Dustin Johnson, 39th Communications Squadron; and Senior Airman Jose Taveras, telephone switch journeyman, 39th CS.**

INCIRLIK AIR BASE, Turkey — The 39th Communications Squadron, with help from National Guard members from Tulsa, Okla., and contractors from LTI DataComm, recently completed an intensive $250,000 project to expand and upgrade Incirlik's analog telephone system to a more efficient digital system. The system delivers an additional 384 telephone lines to the west side of base, which will free up existing copper telephone lines and allow for better overall service.

"The new system is more secure and less vulnerable to traditional disconnection hazards such as lightning strikes, power surges or security breaches. Therefore, customers are less likely to get cut off during their telephone calls," said Tom Hoffman, from LTI DataComm. Converting a 384-line telephone expansion on the west side of base, which houses numerous operations centers, aircraft bunkers and maintenance centers, was a two-step process.

First, it involved installing copper lines necessary to service 10 buildings. It was a challenge for the 39th Comm Squadron because of the limited people and resources here, but the squadron received help from two outside agencies. The 219th Engineering and Installation Squadron from Tulsa, Okla., came to the rescue. "This highly motivated National Guard unit worked around the clock to ensure successful installation of enough copper telephone lines to meet future requirements," said Technical Sergeant Mark Maddox, 39th CS Plans and Implementation Flight NCOIC.

After the copper lines were in, the next step involved installing digital equipment necessary to move a portion of the existing telephone switch to another location. "This is where Harold Ramey and Tom Hoffman came into the picture," said Sergeant Maddox. "Both are contractors who work for LTI DataComm, headquartered in Reston, Va. They travel around the world assisting others in installing and troubleshooting similar telephone system upgrades."

The equipment, called the Fiber-Copper-Wireless Integrated Access Digital Carrier Loop System, or FCW-IA, allowed 39th CS to upgrade the base's existing secure voice, data, fax and digital phone service so secure and unsecured video teleconferencing could be provided at a higher quality.

The system is the newest revolution of telephone technology and is slowly replacing the traditional copper wire telephone line with the fiber optic cable. It allows hundreds of telephone calls, which once had to pass through copper wire pairs to reach their destination, to now travel over two separate fiber rings buried under the base in different locations. The separate fiber rings allow for total system redundancy. So, if one fiber optic line is physically cut, the other line will pick up the remaining slack and prevent phone disconnections.

"This is a plus when critical mission operations are taking place and losing a phone line would hinder the mission," Sergeant Maddox said. "While it was installed too late to support Operation Northern Watch, we are poised and ready to support any future missions.

**BOTTOM LINE**

**Digital telephone, fax and secure voice upgrades allows better overall service and readiness.**

# C4ISR conference focuses on DECISION SUPERIORITY

By Chuck Paone
*ESC Public Affairs*

HANSCOM AIR FORCE BASE, Mass. — The need to transform doesn't mean significant progress hasn't already been made was the genesis of the theme for this year's Command and Control, Computers, Communications, Intelligence, Surveillance and Reconnaissance Summit here.

"We have never had decision superiority, or decision dominance, like we had it in this last war, and the people in this room made it happen," ESC Commander Lt. Gen. Bill Looney said.

Transformation, he and other senior leaders said, should be viewed more as an evolutionary process wherein the military works to continue improving warfighting capabilities.

To help do so, summit organizers assembled four panels that have worked since shortly after last year's summit to analyze Air Force and joint C4ISR needs. Those panels covered effects-based operations, predictive battlespace awareness, network operations and an industry perspective.

Leaders cited the tremendous advances made in the Combined Air Operations Centers at Prince Sultan AB, Saudi Arabia, and at Al Udeid AB, Qatar, as prime examples. He also spoke about the rapid development of "Smart Tanker" and machine-to-machine targeting capabilities, and touched on increased interoperability of combat air forces and mobile air forces.

General Martin said, "Our nation is asking huge sacrifices of our ground forces," he said. "So we have to ask ourselves every day, are we worthy of the leadership and the charge that we are given every day to support those great Americans. I would say, as I've watched throughout the year, we are, but we have to earn it every day."

To keep earning it, military and industry leaders need to build on evolutionary progress that has been steady since Desert Storm in 1991. The general laid out a list of needs identified in five significant conflicts from Desert Storm to Operation Iraqi Freedom, noting that each time issues were identified they were solved, but that then new, more refined needs were identified. The ability to do parallel operations in Desert Storm was a good step, he said, but it didn't mean U.S. forces could conduct integrated operations. He said that military planners and operators always have to consider four things—range, precision, knowledge and time. While range and precision are solid, there's still work to be done in providing knowledge to decision-makers in a timelier manner.

Lt. Gen. William T. Hobbins, the Air Force's new deputy chief of staff for Warfighting Integration, also emphasized the need to provide deciders "decision-quality" information.

"Information needs to flow on an overarching architecture that anticipates [what deciders need to know]," he said of the goal. "This, in essence, would bridge the gap between situational awareness and situational understanding."

This could be compared to an Internet search engine that learns to anticipate a requestor's needs and sorts through massive amounts of information to find just the right material, he explained. In this regard, we've still "got a lot of work to do," he said

**BOTTOM LINE**

**Military planners and operators always have to consider four things—range, precision, knowledge and time. While range and precision are solid, there's still work to be done in providing knowledge to decision-makers in a timelier manner.**

# Being 'people centric' key to multi-national unit effectiveness

By Lt. Col. Warren Low
*USAF, C Squadron, Regional Signal Group*

**BOTTOM LINE**

**Keeping people focused on the direction, staying in touch to provide support, and providing them the education helped C Squadron bring customer relevant, secure, responsive and efficient information technology to SHAPE and NATO.**

**SHAPE, Belgium —** For several decades, U.S. Air Force officers and enlisted members have stood shoulder-to-shoulder with allied partners to provide command, control, and consultation capabilities to NATO civilian and military leadership. We've stood together because even though it's been challenging for all of us to work with 96 multi-national people who are supporting NATO and the Supreme Headquarters Allied Powers Europe, we've found that being more "people centric" has led us to success rather than by being "technology centric."

*Point of View*

I'm part of C Squadron Regional Signal Group, SHAPE, which is roughly equivalent to an Air Force computer support squadron, and one challenge for me during the past 21 months was to motivate and get the organization moving in one focused direction.

One facet of this challenge was the competing requirements of several different information infrastructure projects that converged on the local squadron. All the while, the important task of operations and maintenance continued. Setting the right prioritization and phasing of tasking requires support from the user community and senior leadership.

For me there was a need for clear articulation of those priorities to the squadron on a daily basis. Giving clear articulation of priorities and goals in a multinational squadron required repetition, consistency and face-to-face discussions for success.

That's because some people who arrived fresh from language school had very elementary English skills. For non-native speakers, there were cultural and semantic differences in the processing of the words. So we tailored our communications to be understandable at all levels of English speakers.

Another thing I found helpful was to get out from behind my desk and talk with the soldiers, sailors, and airmen to help gauge the organizational climate. Problems with people can be avoided before they become significant issues. If I can handle the problem locally, we can avoid going through 11 or more different chains of administration.

At SHAPE, we have common rules for personnel management to prevent 19 different national sets of rules for managing people. With evaluations, an understanding of the important points of emphasis with each person's nationality helped the top performers get promoted and to receive good follow-on assignments. Air Force and other U.S. members who helped educate and review evaluations by non-U.S. members helped our airmen continue to be competitive with their peers.

As with Air Force communications and information professionals, working with the latest technology and applying them to the SHAPE mission is for many multi-national personnel the most satisfying part of the job. With the technology they get a sense of professional growth, pride in their unit that they are on the leading edge and the education to use the new tools. Keeping people focused on the direction, staying in touch to provide support, and providing them the education helped C Squadron bring customer relevant, secure, responsive, and efficient information technology to SHAPE and NATO.

# Unveiling the secret codes of steganography

**By 1st Lt. James Caldwell**
*752nd Communications Squadron*

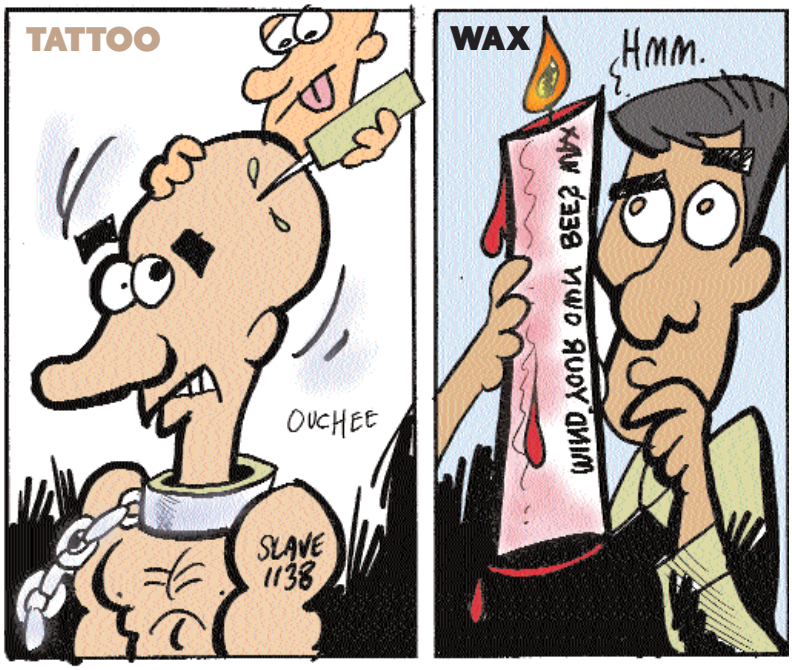
TINKER AIR FORCE BASE, Okla. – A type of ciphering known as steganography is the ancient art of hiding messages so that they're not detectable. Although a cousin to cryptography, steganography is not inherently obvious. So, how is steganography detected and why should network security analysts be alarmed and cautious?

Nearly all steganographic programs in use leave behind traces or fingerprints that indicate something is not right. Based on research conducted over the years, organized crime, terrorists and various other groups operating worldwide commonly use steganography to operate via public forums such as Web sites. Software programs that detect steganography do exist and enhanced iterations are under development. Neil Johnson, graduate student at George Mason University, is developing a "stego-detector." This program, he describes, is designed to search hard drives for electronic fingerprints that typically result from steganographic applications. Similar to a virus scanner, this stego-detector identifies signatures. The Pentagon is also interested in uncovering practices of steganography, and annually funds the Naval Research Laboratory. Their interest spawns, in part, from news reports that link terrorist Osama bin Laden to steganographic communications. The concern is that data messages are being embedded in chat room messaging or bulletins unnoticed, while intelligence agencies are off in another world monitoring [e-mail]. So far, steganography has turned up primarily on hacker Web sites, but was also found on Amazon and eBay. The Air Force and DoD have been working this since 1998, and observation by network security analysts warrants further attention.

**"...organized crime, terrorists and various other groups operating worldwide commonly use steganography to operate via public forums such as Web sites."**

## Through the Ages

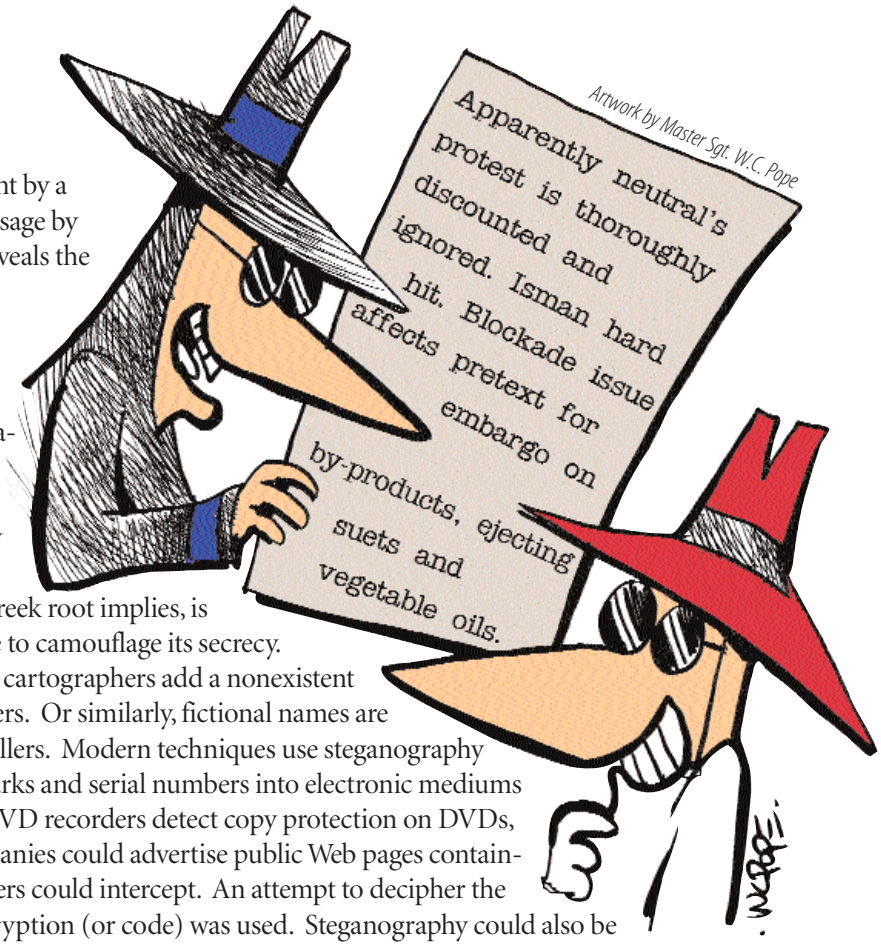
Steganography is widely employed today, but its origins trace back millenniums ago. Before computers and e-mail of today, messengers had two options for delivering messages: one, to memorize the message or, two, hide it on the messenger. These early approaches were based on the principle that secret messages were hidden inside the physical object containing them. Now, digital technology offers new ways and abilities to hide information, even inside digital images. Because electronic information is sent via an array of numbers, one can hide messages randomly, or in noisy areas of an image that draws less attention.




▸▸ The Greek ruler Histaeus would shave the head of one of his slaves, tattoo the message onto his scalp, and send him along to deliver the message after his hair had grown back. The recipient would shave the slave's head to uncover the message and find an untainted scalp to reply by.

▸▸ Demeratus wrote a message to the Spartans warning of an invasion from Xerxes. The message was carved on a wood backing of a wax tablet, then covered in a fresh layer of wax. The seemingly blank tablet was then delivered successfully.

# Secret Messages




Artwork by Master Sgt. W.C. Pope

The text in the cartoon contains a message sent by a German spy in World War II. Decoding the message by extracting the second character of every word reveals the following text:

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Pershing sails for NY June 1.
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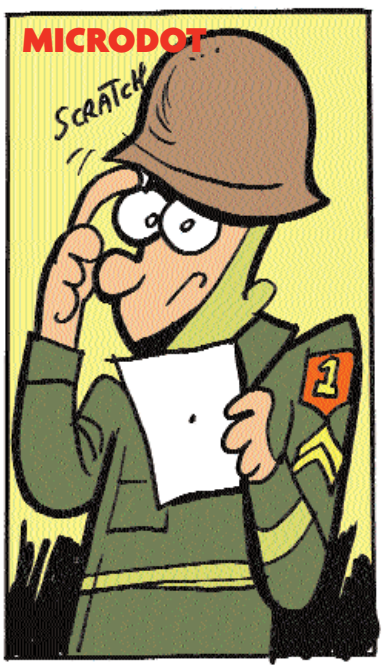
This type of ciphering is known as steganography, which is the ancient art of hiding messages so that they're not detectable. Although a cousin to cryptography, steganography is not inherently obvious. Whereas cryptography is easily detectable as secret code, steganography, as its Greek root implies, is "covered writing," using a physical cover message to camouflage its secrecy.

Steganography is used in map making, where cartographers add a nonexistent street or lake in order to detect copyright offenders. Or similarly, fictional names are added to mailing lists to catch unauthorized resellers. Modern techniques use steganography as a watermark to inject encrypted copyright marks and serial numbers into electronic mediums such as books, audio, and video. For instance, DVD recorders detect copy protection on DVDs, which contain embedded authorizations. Companies could advertise public Web pages containing private, hidden text that only internal members could intercept. An attempt to decipher the hidden text would be unwarranted since no encryption (or code) was used. Steganography could also be used to hide the existence of sensitive files on storage media.


▸▸During the American Revolution, the British and Americans used invisible inks extensively. They didn't have disappearing ink, but rather they used onion juice, alum, ammonia salts and several other materials that would glow dark when held over a flame.




▸▸During World War II, the Germans used microdots, which was essentially a secret message photographed and reduced to the size of a period. FBI director J. Edgar Hoover said the microdot was, "the enemy's masterpiece of espionage."


▸▸The advent of computers further advanced the disguise of messages. For instance, laser printers could be used to offset lines and character spaces by as little as 1/300th of an inch. A binary message could be sent easily using a normal space to represent 0s, and by offsetting characters 1/300th of an inch to represent 1s.


Tech. Sgt. Jim Verchio / Intercom Editor

**During a ceremony commemorating the accomplishments of Lt. Gen. Robert H. Ludwig, Maj. Gen. Charles Croom, Mrs. Nancy Ludwig and Col. David Kovach reflect on General Ludwig's dedication to the Air Force, the comm community and above all, his love for family and friends. General Croom, director of C4ISR Infostructure DCS for Warfighting Integration, Col. Kovach, commander of the Air Force Communications Agency, and several retired generals offered vignettes on the life of General Ludwig during the ceremony.**

# AMERICAN PATRIOT

## AFCA dedicates Ludwig Heritage Hall in honor of Lt. Gen. Robert H. Ludwig

**By Len Barry**
*AFCA Public Affairs*

SCOTT AIR FORCE BASE, Ill. — The comm and info community paid tribute to a man known as the "people's general" by dedicating Ludwig Heritage Hall in his honor.

Dedicated to Lt. Gen. Robert H. Ludwig, a former commander of the Air Force Communications Command here, the hall symbolizes his accomplishments both professionally and personally.

"I will forever remember Bob Ludwig as a kind and courageous man, a respected leader and mentor, an airman's airman … My memories reflect (his) leadership, integrity, kindness and good humor," said retired Maj. Gen. George Lampe.

Several distinguished visitors for Oct. 16 ceremony, hosted by the Air Force Communication Agency, offered vignettes of the general's life.

"Many knew him privately as 'the people's general'," Lt. Gen. Harry Raduege, director of the Defense Information Systems Agency said in a special video presentation. "He embodied all the best attributes of an Air Force leader and communicator for 34 years, and epitomized the integrity and character that the men and women of the United States Air Force look for in their leaders."

Retired Brig. Gen. Bernard K. Skoch said, "This man embodied characteristics that were so rare in his era. In a time when quick decisions were rewarded more than right decisions, he refused to be rushed. At a time when kindness was not regarded as an attribute of leadership, he practiced it every day. In a time when a great deal of words were given to caring for troops and caring for people, he epitomized those values in practice rather than words. In an era when career was focused on by so many people as their sole reason for existence, he put family above all else. And well before our United States Air Force adopted values of integrity, and service before self, and excellence in all we do, Bob Ludwig practiced those things in his life."

The ceremony concluded with comments from Nancy Ludwig, who said, "My family is deeply honored by this living memorial. Bob would have been so pleased to be a part of this permanent display. He loved this building, he loved the comm community, and we thank you."

# In search of WINDMILLS

## Commanders dedicate windmill to wives who are the "wind beneath their wings"

**By retired Master Sgt. Ed Ferguson**

Commanders of the Air Force Communications Agency have an unusual link to a past commander who had a great impact on the communications and information community.

A replica windmill, which once belonged to Lt. Gen. Robert H. Ludwig, has been passed from one commander to the next for nearly a decade. The passing of the eight-foot metal structure has even been incorporated into the formal AFCA change of command ceremony.

"Mrs. Ludwig purchased the windmill as a kit here in the local area and she gave it to General Ludwig, who was the original builder," said Col. David J. Kovach, AFCA commander. "He put it together, and he and Mrs. Ludwig installed it in their yard at Scott AFB as a kind of yard ornament and a memento of their time here."

The first to "take possession" of the windmill, albeit in a roundabout way, was Lt. Gen. Harry Raduege, a previous commander of the Air Force Command, Control, Communications and Computer Agency from 1993 to 1995.

"His wife told him she saw people sneaking around in their backyard one night dressed in a black stocking caps, kind of commando garb, and they snuck the windmill into his yard as a prank," said Colonel Kovach. "At this point, he ended up with this old, rusting windmill, so he called General Ludwig and asked him if he had misplaced it. The general said he lost track of it in the move, and didn't mind if General Raduege kept it."

General Raduege restored the windmill by doing a major overhaul, including corrosion control, repair and painting.

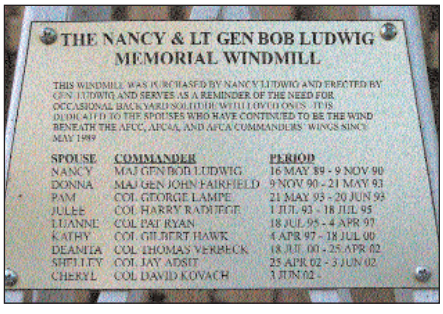
After careful thought, General Raduege decided to dedicate the windmill to all the wives of previous AFCC, AFC4A, and AFCA commanders for their support, dedication, and assistance to the command, the agency, and the Air Force.

He then placed a plaque on the windmill listing each wife and commander with the theme "Wind Beneath My Wings."

He maintained it until he departed and passed it on to Col. Patrick Ryan who then passed it to Col. Gil Hawk, who recently retired as a brigadier general.

"General Raduege made that gesture as a means of tying his time at Scott and his services as the agency's commander back to General Ludwig, who we all appreciate as a very well respected and admired as a communications commander and leader," said Colonel Kovach. "So that began the actual tradition of making the passing of the windmill an event that's part of the change of command ceremonial events at AFCA.

"The windmill resides in my yard today," Kovach said. "Over the years, we have continued to decorate the windmill and to add to its plaque the names of the previous commanders and their wives. It's significant because it focuses attention in a physical way on the value and importance in a partnership.... It's just a gentle reminder that you can take off the uniform, but you can never take off the responsibility to your heritage."




Maj. Gen. Prather, then-commander Air Force Communications Command, visits with Airman 1st Class Richard Hall at the Monte Vergine Radio Relay Site power plant in Italy circa 1984.

A newspaper clipping of the retired general speaking to Rotarians about the work of Del Rio civic leaders in promoting a Customs and Border Protection Academy at Laughlin AFB, Texas.

# Maj. Gen. Gerald L. Prather

**By Don Gasper**
*AFCA Staff Historian*

A standout figure whose life in and out of uniform reflects multi-faceted service is retired Maj. Gen. Gerald L. Prather. After a 32-year distinguished "blue suit" career, culminating in serving as the Air Force Communications Command commander, he has continued his life of service in a variety of roles.

*Then & Now*

After enlisting in the Air Force in 1954 and working as an enlisted aircraft maintenance specialist, General Prather completed the aviation cadet program as a distinguished graduate and received his pilot wings and second lieutenant bars in 1956.

During the next dozen years, he logged more than 4,000 flying hours as a command pilot, and was awarded parachutist and missile badges as well. He flew more than 500 combat support sorties in C-130s in Vietnam, earning the Distinguished Flying Cross and Bronze Star with Valor device.

Not long after retiring in 1986, he received the prestigious Order of the Sword from AFCC NCOs in recognition of his contributions to the enlisted corps. Shortly after retirement, he began his nearly decade of service as a judge of the Justice Court in Val Verde County, Texas. Now retired from that post, "Judge Prather" married numerous couples, including many "communicator couples" assigned to nearby Laughlin AFB, Texas.

**"Do not fear life after serving your country – get involved! You'll be surprised how much you are needed, wherever you settle in."**

Based on his experience as a justice of the peace, he observed: "I found that being a judge was not a lot different than being a commander or a first sergeant in a lot of respects–know the laws (regulations), ensure they are followed, and if not, go into the punishment phase ... and the skill is in the technique!"

Other posts held included airport director of the Del Rio International Airport, director of plans for Val Verde County, and director, vice president, and president of the Del Rio Chamber of Commerce. Of particular note, he led recovery efforts after the 1998 Tropical Storm Charley caused massive flooding in the Del Rio area, serving as Director of Disaster Relief.

"That sudden and sizable challenge was "probably the most rewarding experience I have had since I retired," he said. "The management and leadership skills that I gained from my 32 years in the Air Force were extremely useful to me for my roles during those three years."

He currently serves as a lay minister in the Episcopal Church, a pastoral care counselor for local communities, and a chaplain to both the Val Verde County Medical Center and a local judicial district Juvenile Detention Center. The former "blue suiter" still takes wing thanks to his private pilot license. He also entertains many at festivals across Texas as a member of a popular bluegrass singing group. He and Carolyn, his bride of 47 years, have four grown children, all of whom also reside in Texas. He recently was awarded the Lion Club's Helen Keller Award for humanitarian services to Del Rio children, as well as the Silver Beaver Award by the Boy Scouts of America for 35 years of distinguished service to the nation's youth. He was also inducted into the AACS "Hall of Honor," along with receiving the association's Life Achievement Award. In reflecting upon his past and present service, General Prather offers communicators and all other "blue suiters" of today the following advice: "Do not fear life after serving your country – get involved! You'll be surprised how much you are needed, wherever you settle in."

# Fighting the Korean War from the Alaskan Front

**By Charles Christian**
*Santa Rosa, Calif.*

Time Machine

Here's a little story of a method to increase Airways and Air Communications Service commitment during the Korean War.

I arrived from technical school on a ship to the 1931st AACS Squadron at Elmendorf AFB, Alaska in May 1950.

There were about 200 in the squadron and we had four WWII barracks in the squadron for single enlisted male housing. The 25 man bays in each barracks were not filled and it looked like a long and lonesome year tour for me.

At the time I was a teletype operator (later OJT Crypto). When the war started the next month some of us saw a chance to get out of the place and see some action, and we volunteered to go to Korea. We were told that a portion of the airlift would transit Elmendorf and due to our command mission, we would all be sorely needed where we were.

The squadron increased to more than 400 in the next year. In the summer of 1951 we had a change of commanding officers and Maj. Glenn Moore took over. At the time morale was not too high and it was reflected in our work and the squadron delinquency rate.

He made a deal with the squadron. He would see to it that there would be no more inspections, no more unnecessary extra detail work on our off time, and to let us leave the shades drawn in the barracks as someone was always asleep at all times. In return we would keep our noses clean and do our duty to the best of our ability. It worked! The squadron delinquency rate was one of the lowest thereafter.

In 1988, I met retired Colonel Moore at the AACS reunion here. He insisted that I sit next to him at the banquet. We all liked and respected him when we served under him, and he obviously knew how to achieve a goal. Probably would not have ever happened other than in a time of crisis or war.

That OJT Crypto resulted in my not going to USAF Cadet class 55-H. After college I was grabbed by the CIA and later ended my government career in the Foreign Service of the State Department. A most enjoyable and rewarding career and thanks again North Korea.

News Briefs

## Personnel updates

**FROCKING POLICY:** The Air Force has issued new guidance on frocking, the practice of pinning on a higher rank based on selection for that grade before the actual promotion date. One of the changes is delegation of the approval/disapproval authority to the Air Force Personnel Center commander for frocking to major and lieutenant colonel and to the Air Force Senior Leadership Management Office for frocking to colonel and above.

The criteria for frocking depends on several key factors. First, the officer must be nominated for promotion by the president and confirmed by the Senate. The officer must be serving in (or projected to within 60 days) a valid manpower authorization at the higher grade. Finally, frocking the officer must be essential to his ability to effectively perform his assigned duties.

Instances where they are already filling a permanent position at a lower grade or are moving to another position within the same organization are not sufficient grounds for frocking, according to the new guidance. Deployments and temporary duty assignments are also instances where frocking isn't authorized.

The most common uses of the practice are when officers are assigned to international positions such as embassy, or attache duties, in a combined or joint environment, or in positions of high diplomatic sensitivity, said personnel officials.

The changes will be incorporated into the next revision to AFI 36-2501, Officer Promotions and Selective Continuation. There is no enlisted frocking policy in the Air Force, even though it's practiced by the Army, Navy and Marine Corps. *(AFPC)*

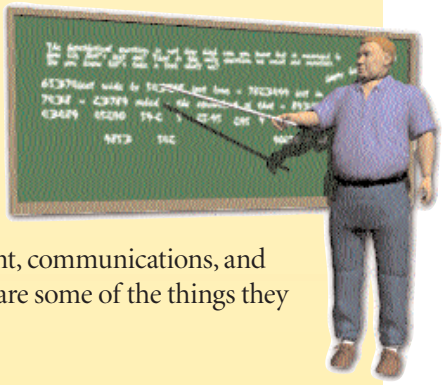
## New Developments

**DEPLOYMENT TOOL:** A web-based, user-friendly software program Air Force Materiel Command experts are

Civilian Focus

# Training opportunities

RANDOLPH AIR FORCE BASE, Texas —The Communications and Information Career Program professional development administrators convert your annual paper documented training requirements to real classes; bringing the classroom to you or sending you to it. Their emphasis is on "providing training guidance and opportunities" to assist you in managing your career. The training they provide supports more than 10,000 civilian CICP registrants and PALACE Acquire interns, working in telecommunications, computer, visual information, information management, communications, and engineering positions throughout the Air Force. Here are some of the things they can assist you with:



**Tuition Assistance:** TA is offered to competitively selected career program acquisition and non-acquisition registrants with the goal of earning an undergraduate or graduate degree in a mission related field. All registrants in the CICP are eligible for TA. Rates paid for tuition varies based upon individual circumstances. See the TA Web page, http://www.afpc.randolph.af.mil/cp/guide/sec-3.htm, for details.

**Short Term Courses:** Each year they bring courses to bases across the Air Force, responding to registrant training needs identified on Career Enhancement Plans. The career program Web page, https://www.afpc.randolph.af.mil/cp/CICP/default.htm, and the list server are your best resources for obtaining information about courses offered.

**Professional Military Education:** You have the opportunity to fill positions that have historically been held by military officers. PME includes such institutions as the National War College, Air War College, Industrial College of the Armed Forces, Air Command and Staff College, Squadron Officer School, and the Basic or Advanced Communications Officer Training. PME can be pursued through in-residence attendance (selection is made on an annual competitive process), on-base seminar, or correspondence courses. Your local training office can provide information on seminars and how to register for correspondence courses. Registrants interested in applying should review Air Force Catalog 36-2223; in addition, should use the following web site: https://www.afpc.randolph.af.mil/cp/DPKD/CCDP/Default.htm.

**Requesting Training and Maintaining Current Records:** The primary method for career programs to determine individual training requirements is the Career Enhancement Plan. The Civilian Personnel Flight annually sends registrants a CEP during March and April. You and your supervisor jointly determine your training needs, record them on the CEP and send to the base CPF training office. Keep your training history current by providing completed course certificates to the base CPF training office.

**List Server :** Subscribing to the list server is a proactive way to gain access to valuable training opportunities. The career program office uses this method of 'pushing' information to folks to keep you informed on issues relevant to you and your career. See instructions at http://www.afpc.randolph.af.mil/lists.htm. *(Submitted by the Communication and Information Career Program Professional Development Team, Air Force Personnel Center, DSN 665-3691. )*

## Saving the net

Tech. Sgt. Ben Bloker / LAFB

**Members from the 1st Communications Squadron pile on sandbags in hopes of keeping network equipment dry as Hurricane Isabel pounded the shore of Langley Air Force Base, Va., Sept. 18. Streets and buildings flooded along with dozens of trees knocked down, resulting in multi-million dollars worth of damage.**

implementing is allowing its members to keep more current training records and saving an estimated $16.9 million in the process.

The Deployment Qualification System gives individuals access to their current deployment readiness status, including prerequisites like self-aid and buddy care, chemical warfare training, and weapons qualifications.

Command officials estimate DQS will save nearly $17 million in annual productivity, but there's another part of the story the numbers don't tell. DQS fills a void in helping individuals meet mandated requirements to make sure they're trained and ready for deployment.

It also provides units with capabilities they've never had before such as timely and accurate information integration across functional areas, email notifications of expiring training, and daily summaries for unit deployment managers. *(AFMC News Service)*

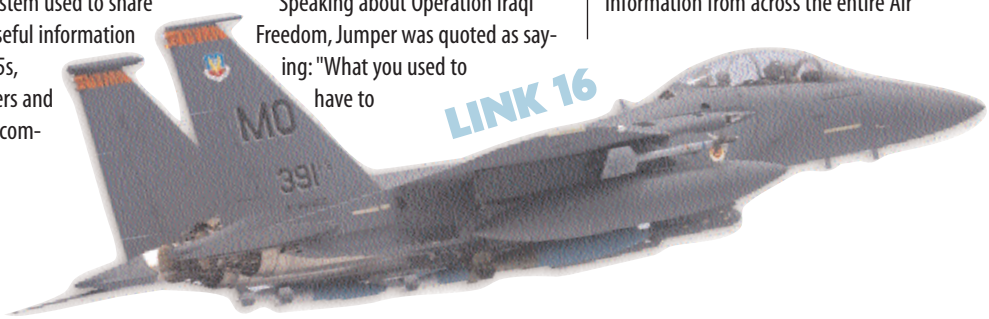
**FIGHTERS AND LINK 16:** Experts recently equipped more than 600 F-15 aircraft with Link 16 Fighter Data Link terminals, improving targeting accuracy and allowing air operations center experts to change mission variables "on the fly." Tactical Data Link System Program Office experts said F-15 Eagle and F-15E Strike Eagle aircraft at all 22 active-duty and Air National Guard units flying the aircraft have been equipped with the system Electronic Systems Center experts helped bring into being.

Link 16 is a "secure, jam-resistant, data link system used to share tactically useful information among F-15s, other fighters and sensor and command and control platforms," said Gordy Van Guilder, TDL Program Office F-15 fielding lead. "With these improvements to information sharing (compared to voice), F-15s can better execute their air-to-air and air-to-ground missions. Following the events of Sept. 11, 2001, Air Force Chief of Staff Gen. John Jumper realized the potential for this system to aid the Air Force's warfighting capability and initiated a directive to outfit all F-15 Strike Eagles with FDL.

He also mandated that one unit be made ready for operations in Afghanistan within a month of the Sept. 11 attacks. He also labeled Link 16 a weapon system.

Speaking about Operation Iraqi Freedom, Jumper was quoted as saying: "What you used to have to convey verbally at great inefficiency is now represented to you in this digital format on your screen, and digital messages and codes are used to give you very precise information. All of that makes target location just that much easier." *(2nd Lt. Martha Petersante Electronic Systems Center Public Affairs)*

**AIR FORCE PORTAL:** In the not-to-distant future, the power of the Web will enable everyone in the Air Force to easily access a broad array of information to make their job and life easier. The Web-based intranet portal environment now under development will provide a single point of access to information from across the entire Air



Force. The system is based around the suite of technologies comprising GCSS-AF: security, application, search, and knowledge management to name a few. Many different Air Force applications are being built, modernized and integrated into GCSS-AF and accessible with no additional userids and passwords via the Air Force Portal.

To date the Air Force Portal has in excess of 90,000 registered users, and serves about 350,000 Web pages per day and 120,000 logins per week.

Experience from testing the portals at several bases is being used to plan the Air Force Portal worldwide rollout.

These portal utilization parameters will grow substantially in the coming months as more and more users and capabilities are fielded on GCSS-AF.

For more information, see https://www.my.af.mil.

**INSIDER ATTACK DETECTION:** Technology that detects computer intrusions from inside attackers is getting developmental funding from Defense Advanced Research Projects Agency officials thanks to a paper Rome researchers presented at the 2002 Military Communications Conference.

Dr. Kevin Kwiat, Air Force Research Laboratory Information Directorate at Rome, N.Y., presented the paper describing a User-Level Anomaly Detection System, joint effort between experts from the directorate and State University of New York at Buffalo.

"The most difficult computer system intruder to detect is someone on the inside — someone who has been granted access to a system," Kwiat said. "What this technology will do is track people from the time they log on to a system. It's similar to a pilot filing a flight plan. If he deviates from that plan, people notice and take action necessary to help him or find out why he's not on.

That's what this system is going to do, if someone gets out of the prescribed path, it will flag that and help prevent inside attacks." *(AFMC News Service)*

## Communications test

Kevin Robertson / EAFB

**Test force experts completed the first four-ship flight test of the Intra-Flight Data Link in the F/A-22 Raptors at Edwards AFB, Calif. IFDL is a low-probability-of-intercept transmitter that allows Raptor pilots to automatically share flight information with other airborne crews without using radio communications. Along with the IFDL four-ship testing, members carried out initial operational tests and evaluations. Sixteen aircraft were airborne for support, including chase aircraft and tankers.**

## KUDOS

**JUICE 03:** Troops from the 31st Combat Communications Squadron at Tinker AFB, Okla., spent a week activating communications and airfield services while learning site setup and defense, and field operations during the annual Department of Defense's Joint Users Interoperability Communications Exercise.

The first phase included testing information assurance capabilities and using the SS-7 telephone switch.

The second phase of the exercise was a Joint Interoperability Certification to determine if the various services' implementations of the tactical Defense Messaging System could provide writer-to-reader organizational messaging exchange between DMS users, legacy users, Allies, and non-DoD users.

The 31 CCS set up their equipment – a USC-60A satellite terminal, small Theater Deployable Communications package, two tactical DMS suites, and the TTC-39A tactical telephone switch, in their squadron work bays.

The location and operating hours allowed troops to focus on learning equipment, without the added stresses of 24-hour operations and field conditions. The operation helped the 31st CCS train for a sustainment mission.

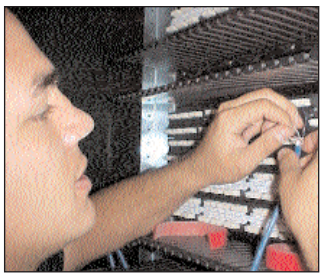
Combat communications units have the primary mission of activating services, but often are tasked to deploy to established sites.

Six weeks of continual DISN access gave an uncommon opportunity for the 31st CCS to refine its sustainment skills. *(1st Lt. Rachel Laughlin, Tinker AFB, Okla.)*

Master Sgt. Karen Petitt / AFCA PA

# Lead by example

**Members from the Air Force Communications Agency at Scott AFB, Ill., run with Chief Master Sgt. Jonathan Hake during a recent visit. Chief Hake (pictured in the white tank top) is the Command Chief Master Sergeant of the 11th Wing at Bolling AFB, Md., and he is the command chief for all Field Operating Agencies.**



**Staff Sgt. Jonathan Mills patches panels while deployed to Cyprus.**

**CYPRUS SUPPORT:** Members of the 1st Communications Maintenance Squadron, located near Ramstein Air Base, Germany, deployed to the island of Cyprus to provide support for the communications infrastructure.

They gathered any and all communications equipment and cabling they could "scrounge" and, given the unknown user requirements and the mismatch of equipment, they arrived on site expecting to "engineer on the fly." The 19-person, combined 3C and 2E team eventually extended the communications infrastructure to more than 30 buildings by installing 80,000 feet of cable and more than 600 communications ports.

Their efforts provided connectivity to 4,000 troops and more than 40 Navy and Air Force refueling aircraft. *(Capt. Chad Raduege, 1st CMS)*

**LEGION OF MERIT/BRONZE STAR:** Col. David J. Kovach, commander of the Air Force Communications Agency at Scott AFB, Ill., was awarded the Legion of Merit and the Bronze Star for his work in providing communications and information support for the Air Force during crucial periods in the nation's history. Lt. Gen. William Hobbins, Air Force's Warfighting Integration deputy chief of staff, presented the awards during a visit to the agency.

The Legion of Merit was awarded for outstanding service to the nation in assignments as commander of the 3rd Combat Communications Group, Tinker AFB, Okla.; commander of the 609th Air Communications Squadron, and director of communications, Headquarters 9th Air Force and U.S. Central Command Air Forces, from June 1997 to May 2002. He led teams that provided command and control communications and computer network services for missions in Southwest Asia, Africa, Asia, Latin America, Europe and the Pacific. During his tenure, his units earned the Air Force Association's Verne Orr Award, the Commander-in-Chief's Installation Excellence Award, the White House National Public Service Award, two Air Force Outstanding Unit Awards, and the Lt. Gen. Harold Grant Award, recognizing the Air Force's premier communications squadron.

He was also instrumental in establishing the Air Force's most advanced Combined Air Operations Center and communications enhancements that proved critical to successful operations in Southwest Asia.

He earned the Bronze Star for meritorious achievement while engaged in ground operations in Afghanistan and while serving at Prince Sultan Air Base, Saudi Arabia, as director of communications and information, U.S. Central Command, and director of command, control, communications and computer systems, Combined Air Operations Center, from September to December 2001.

He led preparation of the Combined Air Operations Center to bed down 550 operations personnel in just three weeks, and to configure the theater-wide command and control system for air operations that integrated more than 500 newly assigned aircraft. His efforts to build reliable, secure communications systems ensured the Air Force's ability to find and track the enemy, and attack with devastating effect at decisive times and places. He also provided operational direction that enabled more than 1,300 communications personnel at 13 deployed bases to integrate their efforts into a cohesive support team.

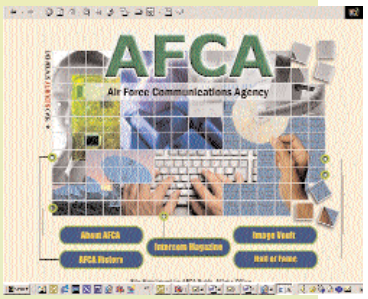
**Lt. Gen. William Hobbins, Deputy Chief of Staff for Warfighting Integration, presents Col. David Kovach, AFCA commander, with the Legion of Merit and the Bronze Star for providing critical communications and information support in Iraqi and Afghanistan operations.**

## Intercom themes

After numerous suggestions from the field, the following overarching themes were selected for the *intercom* magazine for 2004. A more complete listing of ideas and suggestions is located on the *intercom* home page under submission guidelines. The staff will be looking for folks to follow up and submit those stories even though the "theme" may not be represented.

- **Jan:** C4ISR and Decision Superiority
- **Feb:** Global Information Grid
- **Mar:** Personal Comm
- **Apr:** Satellite Comm
- **May:** Top 10 Concepts You Need to Know
- **Jun:** A Day in the Life
- **Jul:** Lead Commands
- **Aug:** Training
- **Sep:** EAF update
- **Oct:** Information Assurance
- **Nov:** Transformation update
- **Dec:** TBD
- **Jan 05:** Annual Almanac

## New Web site




The Air Force Communications Agency has launched its new Web site, so make sure your links are going to the right public home page. The address is: **http://public.afca.af.mil.** Special thanks goes to Tech. Sgt. Mark Diamond, Air Mobility Command Public Affairs, for the design and site architecture.

Techno Gizmo

# I-BEST

## INMARSAT Bandwidth Efficient Satellite

### Why I-BEST?

During Operations Enduring Freedom and Iraqi Freedom, Theater Deployable Communications proved to be a critical component of the deployed communications architecture, performing with unprecedented success. TDC provides common-user C4I capabilities in a bare-base environment, using commercial off-the-shelf technology, and is the communications mainstay of the Aerospace Expeditionary Force. However, before the first TDC pallet arrives, the need for INMARSAT high-speed data services has become essential to effectively support Assessment Teams and Advanced Echelon teams responsible for surveying and opening air bases.

### What it provides

To meet this requirement, Col. Michael Basla, Air Mobility Command Director of Communications and Information, directed the fielding of an interim AMC communications capability known as INMARSAT Bandwidth Efficient Satellite Transport. AMC employed four I-BEST systems in OIF enabling the successful opening of three airfields. I-BEST provided secure e-mail for in-theater Command and Control and reach-back to the Tanker Airlift Control Center as well as NIPRNET transport of intransit visibility data for TALCE operations. Four more systems are on order with delivery expected by April 2004.

### How it works

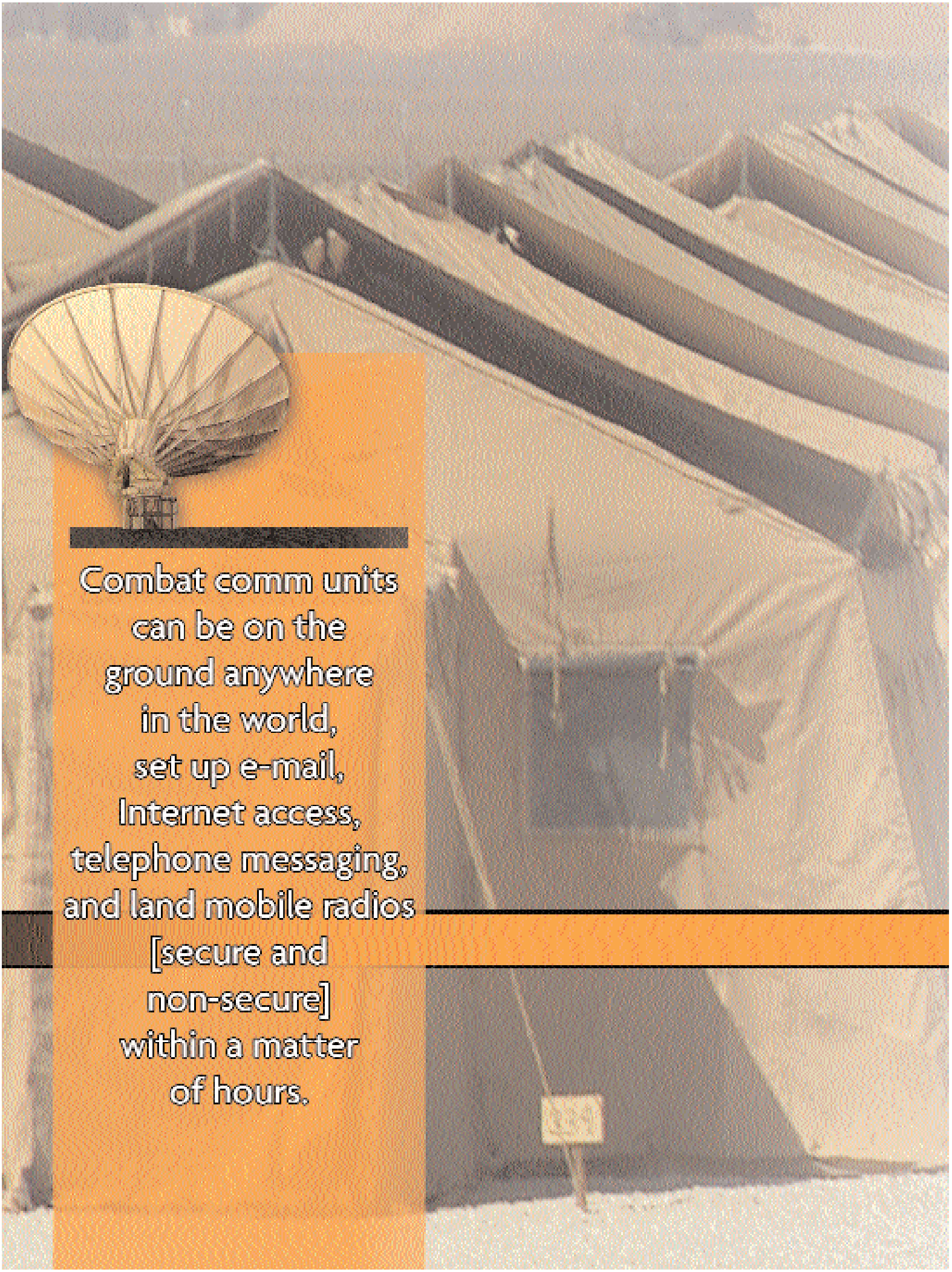
The system uses a standard INMARSAT-B terminal with a single transit case network access solution for a very small footprint. The bandwidth is shared between multiple deployed TALCE elements, resulting in a far more economical use of limited bandwidth. Basic I-BEST services include NIPRNET, SIPRNET and DSN. Based on the successes in OEF and OIF, the TDC program office is now working a standard solution to meet the need for a more robust initial communications capability.

The system uses a standard INMARSAT-B terminal with a single transit case network access for a very small footprint.

**Source:** *Master Sgt. Robert Rustenbeck, AMC/SC*

# To the world you might be
# ONE PERSON
## but to one person you might be
# THE WORLD

Capt. Heather Healy comforts a baby at the Pouponnière de Medina orphanage in Dakar, Senegal. The 398th Air Expeditionary Group donated clothes, toys and miscellaneous supplies to the orphanage Oct. 7. Captain Healy is deployed from Royal Air Force Mildenhall, England. Photo by Staff Sgt. Karen J. Silcott



Combat comm units can be on the ground anywhere in the world, set up e-mail, Internet access, telephone messaging, and land mobile radios [secure and non-secure] within a matter of hours.